[Title Page]
[p. i]

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SMITHSONIAN INSTITUTION
INSTITUTE OF SOCIAL ANTHROPOLOGY
PUBLICATION NO. 7

# CULTURAL GEOGRAPHY OF THE MODERN TARASCAN AREA

*by*

ROBERT C. WEST

*Prepared in Cooperation with the United States Department of State as a Project of the Interdepartmental Committee on Scientific and Cultural Cooperation*

**One of a series of monographs describing the results of the joint field investigations of the Institute of Social Anthropology and the Escuela Nacional de Antropología of Mexico in the Tarascan area of Michoacán, Mexico, 1945–46**

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[P. ii]

## LETTER OF TRANSMITTAL

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Smithsonian Institution,
Institute of Social Anthropology,
*Washington 25, D. C., June 13, 1947.*

Sir: I have the honor to transmit herewith a manuscript entitled "Cultural Geography of the Modern Tarascan Area," by Robert C. West, and to recommend that it be published as Publication Number 7 of the Institute of Social Anthropology.

Very respectfully yours,

George M. Foster, *Director*

Dr. Alexander Wetmore,
*Secretary of the Smithsonian Institution.*

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# CONTENTS

PAGE

Preface .......... v
Phonetic note .......... vi
The modern Tarascan area .......... 1
  The physiographic areas .......... 2
  Climate and vegetation .......... 5
  Soils .......... 9
Tarascan population .......... 11
  The recession of native speech .......... 11
  Modern linguistic distributions .......... 18
Tarascan settlements .......... 24
  House types .......... 27
  The land system and the pueblo .......... 32
Tarascan economy .......... 33
  Agricultural systems and associated crop types .......... 33
    Field agriculture and associated crops .......... 34
    Horticulture .......... 45
Tarascan economy—Continued
  Stock raising and animal products .......... 47
  Food-gathering activities .......... 50
  Hunting activities .......... 51
  Fishing .......... 52
  Lumbering activities .......... 55
  Handicrafts .......... 56
    Ceramics .......... 62
    Textiles .......... 64
    Woodcraft .......... 67
    Lacquer work .......... 69
    Leathercraft .......... 69
    Metalcraft .......... 69
    Stonecutting .......... 71
  Trade and transport .......... 71
Bibliography .......... 75

# ILLUSTRATIONS

## PLATES

(All plates at end of book)

1. Physical landscape.
2. Water supply and settlement.
3. House types.
4. House types.
5. Maize culture.
6. Wheat culture.
7. Horticulture and domestic animals.
8. Fishing and forest exploitation.
9. Ceramics. Pottery making at Cocucho.
10. Ceramics. Pottery making at Cocucho (continued).
11. Textiles.
12. Textiles.
13. Woodwork.
14. Markets and transport.

## FIGURES

PAGE

1. Decline of Tarascan population, 1500–1940 .......... 22
2. Growth of population in the Sierra, 1750–1940 .......... 23
3. Tarascan planting tools .......... 37
4. The T'apáratárakua irrigation device .......... 48
5. The fish spear and *fisga* .......... 52
6. The wheel lathe .......... 68

## MAPS

PAGE

1. Topographic map of the modern Tarascan area .......... 1
2. Geognostic map of the modern Tarascan area .......... 2
3. Length of frost season in northwest Michoacán .......... 5
4. Climatic map of Michoacán .......... 7
5. Vegetation types in the modern Tarascan area .......... 8
6. Soil types in the modern Tarascan area .......... 10
7. Pre-Conquest and modern boundaries of Tarascan speech .......... 12
8. Area of Tarascan speech, ca. 1750 .......... 13
9. Area of Tarascan speech, ca. 1800 .......... 14
10. Area of Tarascan speech, ca. 1850 .......... 15
11. Area of Tarascan speech, 1940 .......... 16
12. Distribution of Tarascan speech by settlements, 1940 .......... 18
13. Distribution of monolinguals in the Tarascan area, 1940 .......... 21
14. Distribution of La Cañada settlements, 1580 and 1946 .......... 25
15. Plan of Uringuitiro, 1946 .......... 27
16. Plan of Ahuiran, 1946 .......... 28
17. Plan of Tirindaro, 1946 .......... 29
18. Distribution of house types in the Tarascan area, 1789 and 1946 .......... 31
19. Distribution of fishers around Lake Pátzcuaro, 1940 .......... 53
20. Distribution of handicrafts in the modern Tarascan area .......... 56
21. Distribution of markets and their local trading territory in the modern Tarascan area .......... 72

[P. V-a]
[P.iv contains no text]

# PREFACE

121 The present study was done under the auspices of the Institute of Social Anthropology, Smith-
[122] sonian Institution, Washington, D. C., and in cooperation with the Escuela Nacional de Antropología, Mexico, D. F. The study proposes to serve as a background for the various detailed pueblo monographs executed in the Tarascan area by other members of the Institute.

Being a report on the cultural geography of a region, the present paper is chiefly descriptive, although a developmental treatment has been employed wherever the scanty historical materials would permit. Physical background is only briefly considered; emphasis is on material culture, particularly modern Tarascan economy: agriculture, handicrafts, and trade. In addition, an attempt is made to describe the areal recession of Tarascan speech since Spanish contact.

Field work was done in April, May, and June
114 of 1946. With the exception of Cheranátzicurin, all Tarascan towns were visited. Many neigh-

# PREFACE

114 boring mestizo pueblos (formerly Tarascan) were
inspected to obtain comparative data. Approximately two-thirds of the field season was spent
in the Sierra. Archival research was done in the
127 Archivo del Arzobispado de Michoacán, Morelia,
the Archivo General de la Nación, Mexico, D. F.,
and the Museo Nacional de Antropología, Mexico,
D. F.

115 I am especially indebted to Sr. Pablo Valásquez G., a native Tarascan and anthropology student, who accompanied me in the field. His intimate knowledge of the Tarascan Sierra, its language, and many of its customs was an invaluable aid, not only in the field, but also while the report was in preparation. Velásquez read a large part of the manuscript and corrected the use and spelling of all Tarascan words employed in the text.

Robert C. West.

Mexico, D. F.
*March 1947.*

[P. vi]

# PHONETIC NOTE

104 194 The phonetic symbols used conform to the Tarascan alphabet approved by the Congreso de Filólogos y Lingüistas of México in 1939 and employed by the Tarascan Project of the Departamento de Asuntos Indígenas. The alphabet is based on standard Spanish usage insofar as possible, with additional symbols added for Tarascan and with some clarification of the Spanish symbols as indicated below.

The vowels *a*, *e*, *i*, *o*, *u* have Spanish values. The vowel ʌ is intermediate between Spanish *i* and *u*.

The consonants *b*, *d*, *f*, *g*, *j*, *k*, *l*, *m*, *n*, *p*, *r*, *s*, and *t* have regular Spanish values. In addition the following symbols are used:

*ȼ* is the equivalent of English or Spanish *ts*.
*č* is the equivalent of English *ch*.
*ŋ* is used for the sound of English *ng* in "sing."
*ǰ* is the equivalent of French *j*.
*ɹ* is intermediate between Spanish *l* and *r*.
*r* is the equivalent of Spanish *rr*.
*š* is the equivalent of English *sh*.
*ž* is the equivalent of English *z*.
*ȼʻ*, *čʻ*, *kʻ*, *pʻ*, and *tʻ* are aspirated forms of the consonants given above.

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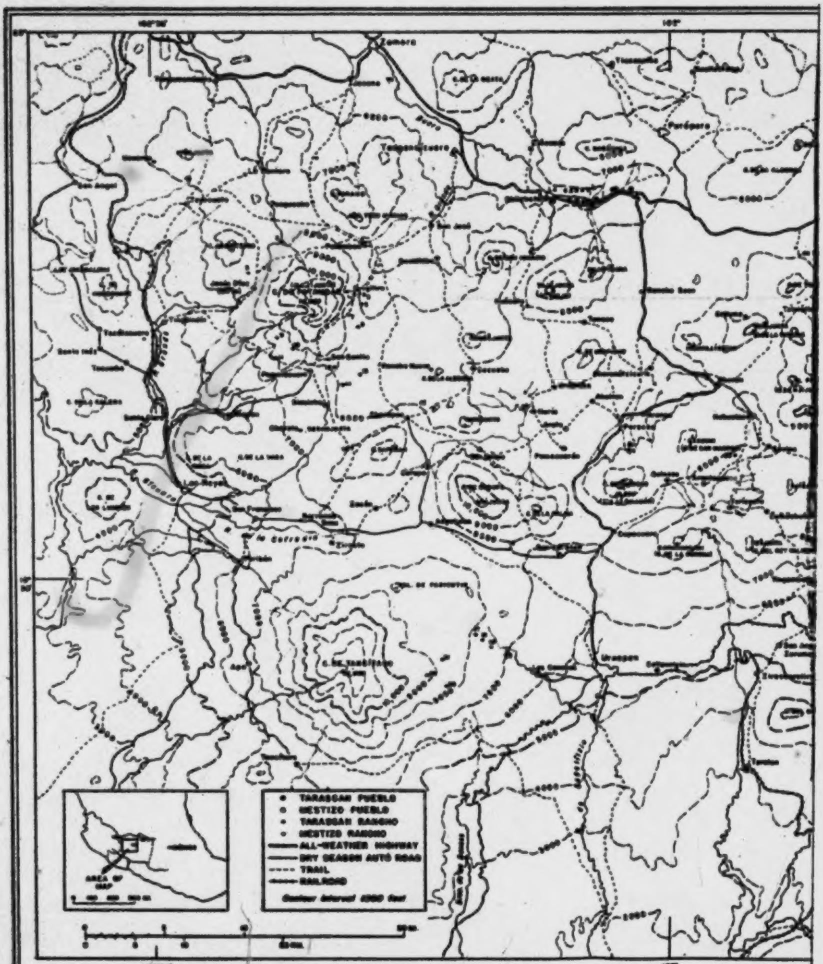
131
133
487


Zamora
TARASCAN PUEBLO
MESTIZO PUEBLO
TARASCAN RANCHO
MESTIZO RANCHO
ALL-WEATHER HIGHWAY
DRY SEASON AUTO ROAD
TRAIL
RAILROAD
AREA OF MAP

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Map 1.—Topographic map of the modern Taras

[Facing page 1; section A]

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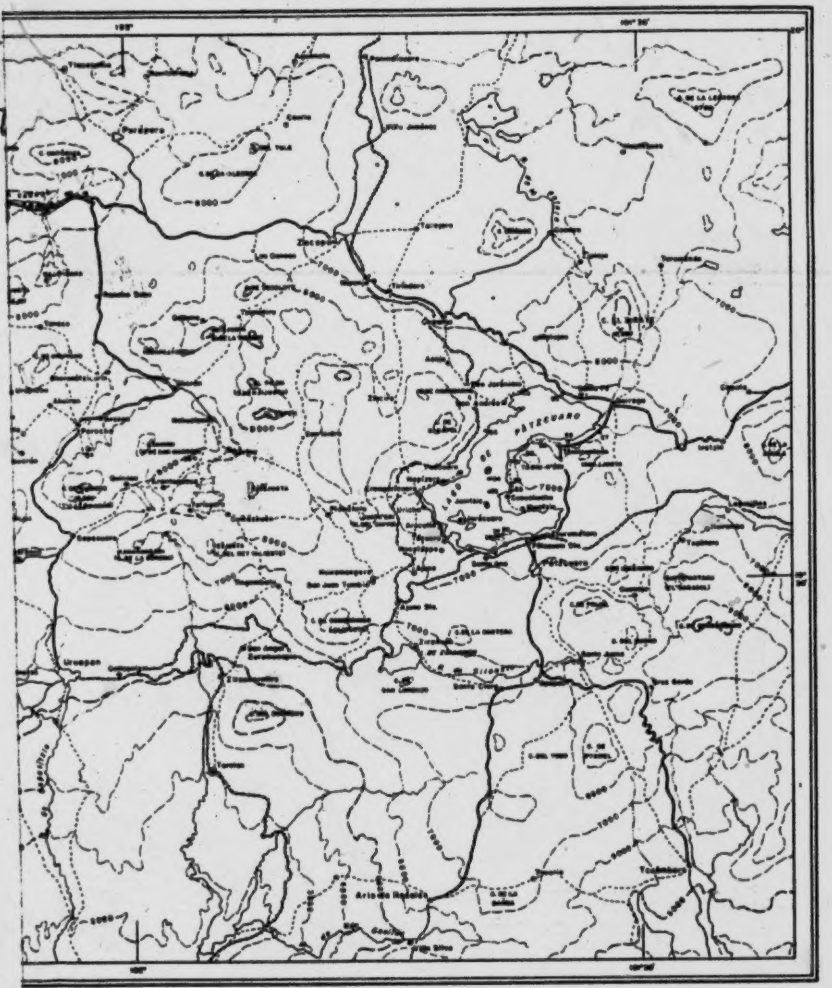
PÁTZCUARO
7000
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Topographic map of the modern Tarascan area.

[Facing page 1; section B]

[P. 1-a]

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# Cultural Geography of the Modern Tarascan Area

By Robert C. West

## THE MODERN TARASCAN AREA

[P. 1-B]

191 The present territory of Tarascan speech consists of a relatively small area (about 3,500 sq.
131 km.) in northwestern Michoacán. Approximately, the modern area extends eastward from the Zamora-Los Reyes railroad to the east shore of Lake Pátzcuaro, and southward from the México-Guadalajara highway to a line drawn between Pátzcuaro and the peak of Tancítaro (map 1).[1] A few small islands of Tarascan-speaking folk exist south of the main area. Within the present
[161] area nearly 55,000 individuals of indigenous speech live in 66 Tarascan pueblos and 50 ranchos.

131 Four geographical regions comprise the modern Tarascan area. (1) The Sierra (called by the
101 Tarascans Sierra or Siériš) is the largest of the regions, the main portion of which extends westward from Lake Pátzcuaro to slightly east of the Zamora-Los Reyes railroad.[1a] The northern

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[1] Map 1 is based on an enlarged portion of sheet 643A (Uruapan) of the
102 AAF Preliminary Base, 1:500,000. This sheet was compiled by the U. S. Aeronautical Chart Service in January 1945 from AAF trimetrogon photog-
131 raphy taken in December 1942. Positions and names of topographic fea-
133 tures which appear on the accompanying map were checked on the ground during the spring of 1946. Some errors were encountered on the original map: misnamed localities (e. g. Ajuno), small errors in routes of highways and railroads, mistakes in elevations. Drainage was found to be fairly correct. On map 1 only the more important trails are indicated. Numbered localities refer to the following ranchos:

1. Guarachanillo.
2. Aranza.
3. Las Trojes.
4. Las Cañas.
5. El Venado.
6. Tapan.
7. Tierras Blancas.
8. La Mesa.
9. La Tinaja.
10. Queréndaro.
11. Zaramera.
12. San Luis Sorema.
13. La Jolla.
14. San Marcos Arachúcuta.
15. Huancho.
16. Las Cocinas.
17. San Nicolás.
18. La Alberca.
19. La Atascada.
20. El Rosario.
21. El Tepamal.
22. Tepetate.
23. Tejamanil.
24. Pacápatiro.
25. Chupícuaro.
26. Opongüio.
27. Patambicho.
28. Ojo de Agua.
29. Ichupio.
30. Tareria.
31. Ucasanástacua.
32. La Vinata.
33. Las Granadas.
34. Yunuén.
35. Tecuena.
36. Urandén Morales.
37. Urandén Morelos.
38. Urandén Carian.
39. El Padre.

The following Tarascan ranchos (listed in the official 1940 census) are not located: Tzintzicha (municipio of Chilchota); Agua Escondida (municipio of Tangancícuaro); Las Encinillas and Los Laureles (municipio of Tangamandapio); La Providencia and El Tropezón (municipio of Los Reyes); El Tejocote (municipio of Paracho); Revolución (municipio of Erongarícuaro); and Itziparámucu (municipio of Tzintzuntzan).

[1a] On modern maps the high area west of Lake Pátzcuaro is termed "Sierra de los Tarascos." In colonial documents the area was usually called "Sierra de Michoacán."

131 101 boundary approximates the México-Guadalajara highway, while the steep escarpment that plunges into the Balsas-Tepalcatepec Basin marks its southern limit. An eastward extension lies south and southeast of the lake and joins with the Sierra de Ozumatlán in eastern Michoacán. Containing
[162] 60 percent of the present indigenous group, the Sierra west of the lake is the modern center of the Tarascans. (2) The Lake Pátzcuaro (Japúndaɹu, Inčámecuaɹu) area contains 19 percent of the
[162] Tarascan population distributed in 13 pueblos and 13 ranchos along the lake shore and on the islands. Formerly one of the political centers of the Tarascan Empire, the lake region, in terms of indigenous speech, has declined rapidly since late colonial times. The speech of the entire south
[191] shore and the towns of Quiroga, Tzintzuntzan, and Erongarícuaro is predominantly Spanish. North and northeast of the Sierra lie two small areas of indigenous speech, which appear to be remnants of the once large northern Tarascan zone. One of these is (3) La Cañada (Erášeman), a small narrow valley located at the northern edge of the Sierra. This valley was the region of the "onze pueblos" of
[162] colonial days. Today nine towns with 9 percent of the total Tarascan population are clustered along a strip of alluvium within the valley. (4) The other remnant of the northern zone lies north and northwest of Lake Pátzcuaro and contains
[162] seven pueblos and 9.5 percent of the total number of Tarascan-speaking folk.[3] Other regions of Tarascan speech consist of "islands" south of the main area. Cuanajo, located southwest of Morelia in the western[1] extension of the Sierra, is the last fragment of the former indigenous area southeast of Lake Pátzcuaro. San Angel Zurumucapio and the newly formed towns (Caltzontzin and Villa Silva) harboring refugees from the stricken

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[3] These pueblos include Tirindaro, Tarejero, and Naranja on the shore of former Zacapu marsh; Azajo and Comanja on the northeastern edge of the Sierra; Teremendo and Zipiajo at the northern foot of Cerro el Zirate.

[1] [Probably should read "eastern", if referring to Tarascan Sierra.—Analyst.]

131 zone around Parícutin Volcano, are the remaining 101 predominantly Tarascan settlements in the *tierra templada*, the upper part of the plateau escarpment [162] (2 percent of Tarascan population in 1940). Formerly an important part of the Tarascan [191] Empire, the hot lands of the Tepalcatepec and Balsas Basins (*tierra caliente*, Jurío) have lost completely the last vestige of spoken Tarascan.

A small number of Tarascan-speaking folk live in some of the larger mestizo towns adjacent to the main Tarascan area: Uruapan, Pátzcuaro, Coeneo, Zacapu, Zamora. With the possible exception of a few old households in Uruapan, the presence of aboriginal speech in the large mestizo settlements probably represents a recent influx [166] from rural areas (a desire for urban life, migration from the volcano-devastated areas) rather than linguistic remnants.

## THE PHYSIOGRAPHIC AREAS

133 **The Sierra.**—The Tarascan "Sierra" is not a mountain chain; it is rather a volcanic plateau, whose average elevation is some 1,500 feet higher than that of the surrounding areas and whose surface has been roughened by large composite volcanoes, scores of small cinder cones, and extensive lava flows (*malpaís*). Lying within Mexico's transcontinental volcanic axis, the Sierra is the locale of the country's newest active volcano, Parícutin.[3] Within the central part of the area elevations range from 6,900 feet to over 12,660 feet (Cerro de Tancítaro). The altitude of the plateau increases from west to east. Elevations of towns in the western half of the Sierra range from 5,180 feet (Atapan) to 7,800 feet (Pamatácuaro); in the eastern half, from 8,040 feet (Sevina) to 8,460 feet (Cumachuén), the highest pueblo in the Sierra west of Lake Pátzcuaro. Even higher settlements (e. g. the rancho of Cruz Gorda, 8,987 feet) exist southeast of the lake, and the highest point in Michoacán, the Cerro de San Andrés (12,840 feet), lies in the Sierra de Ozumatlán, 62 km. east of Morelia.

Tertiary and Quaternary vulcanism has produced the major land forms in the Sierra (map 2). In age the volcanic forms range from probably Eocene to the present time. The oldest are massive composite volcanoes, the highest and most

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[3] The chief scientific references on the Parícutin Volcano include Ordóñez (1945), Robles Ramos (1943), Pérez Peña (1946), Mexico City Universidad Nacional Instituto de Geología (1945).

133 prominent landmarks in the area: Cerro de Tancítaro (12,660 feet), Cerro de Patamban (12,300 feet), Cerro de Quinseo (10,800 feet), Cerro el Zirate (10,955 feet). The flanks of these [135] mountains are composed mainly of andesite with some pinkish rhyolite near the summits; small veins of mineral-bearing quartz sometimes occur within the andesite. Conical shape and radial drainage characterize these volcanoes, but most craters have been destroyed by erosion. Frequently erosion of soft consolidated ash situated between andesite flows has formed caves, which have acquired importance in Tarascan folklore.

Cinder cones and lava flows, Pleistocene to Recent in age, represent the younger forms in the Sierra. The entire area is dotted with cones, 250 to 700 feet high, with no apparent alinement. Most are composed of semiconsolidated ash, cinder, and large blocks of explosion remnants. Two types of cones occur: (1) the symmetrical cone with a well-developed, flat-floored crater, and (2) the breached cone, with one side partially destroyed, initially by explosion or lava flow and subsequently by erosion. Some cones are ribbed by radial drainage; others carry scars of surface slips; owing to porous surface materials, a few show little effects of erosion, in spite of high (35°–45°) angle slopes.

Basaltic lava flows, originating usually from Pleistocene or Recent fissures in the sides of old volcanoes or occasionally from large cinder cones, have descended slopes in narrow corridors and have fanned out in wide expanses on gentle gradients. Fantastically rough surfaces characterize the flows, which form the Sierra's badlands—agriculturally unproductive and barriers to horse and wheeled traffic. Comparative age of the flows can be roughly determined by the degree of rock decomposition and character of vegetation cover. In some flows, such as that south of Pomacuarán, depressions and crevasses are partially filled with alluvium; large areas are covered with a thin soil mantle; sizable pines and oaks cover most of the flow. These features evidence a long period of exposure. In contrast, the rough, blackened, almost treeless *malpaís* northwest of Zacapu at the Sierra's northern edge, appears to be a much younger flow.

Volcanic activity in the Sierra has possibly been continuous from Eocene to the present day. Jorullo (1759) and Parícutin (1943) represent

[TEXT CONTINUES TOP OF P. 3a----ANALYST]

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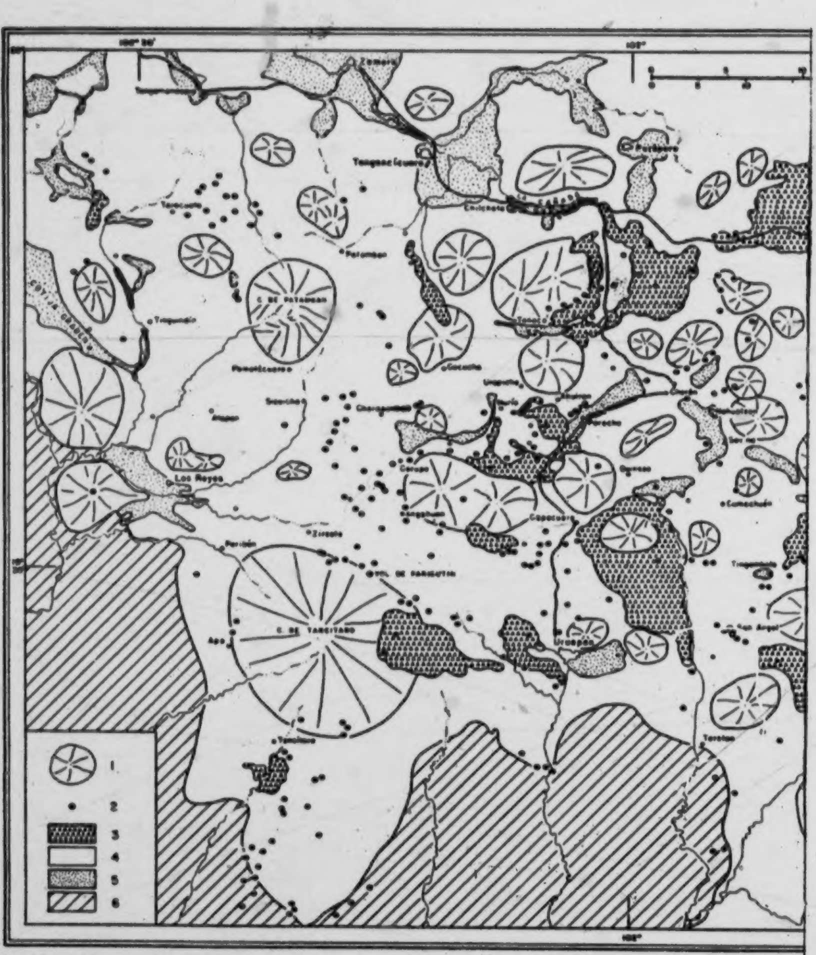
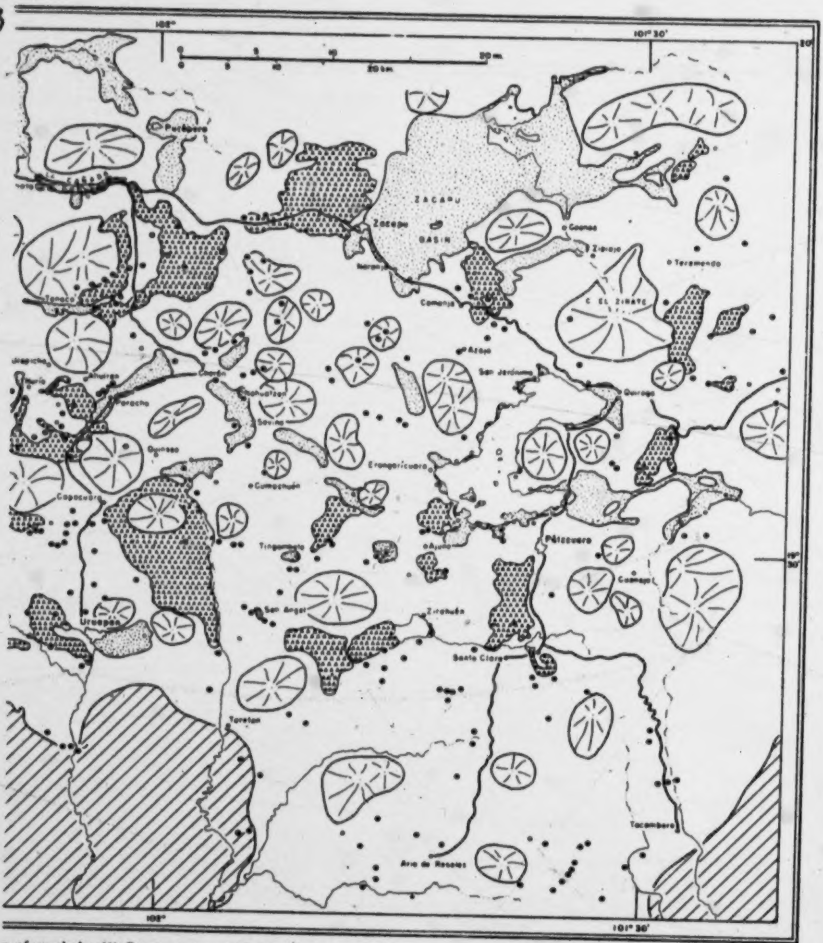

Zamora
Los Reyes
C. DE TANCITARO
VOL. DE PARICUTIN
Uruapan
1
2
3
4
5
6

MAP 2.—Geognostic map of the modern Tarascan area. Explanation of symbols: (1) Steep slopes of Tertiary co
(malpaís). (4) Lower slopes of volcanoes, cols, mesas, small flattish basins of consolidated and unconsolidated a
of stream alluvium and lacustrine deposits. (6) Highly dissected volcanic slopes of the southern escarpment.

[Facing page 2; section A]

133


102°
101° 30'
20°
19° 30'
20 km.
Purépero
Zacapu
ZACAPU BASIN
Naranja
Comanja
Coeneo
Zipiajo
Teremendo
C. EL ZIRATE
Tanaco
Cherán
Paracho
Nahuatzen
Sevina
Azajo
San Jerónimo
Quiroga
Erongarícuaro
Capacuaro
Cumachuén
Tingambato
Pátzcuaro
Uruapan
San Ángel
Zirahuén
Santa Clara
Taretan
Tacámbaro
Ario de Rosales

n of symbols: (1) Steep slopes of Tertiary composite volcanoes. (2) Recent cinder cones. (3) Recent lava flows
ish basins of consolidated and unconsolidated ash, cinder, and other volcanic debris. (5) Large flattish-floored basins
volcanic slopes of the southern escarpment. Data from aerial photographs and field notes. 748001 O - 48 (face p. 2)

[Facing page 2; section B]

133 historical examples of vulcanism within or adjacent to the area. However, vulcanism associated with human ancient settlement in the area, [172] is unquestionably evidenced by the occurrence of charred maize ears embedded in a basaltic lava flow 18 km. northwest of Morelia.[4]

Aside from land forms resulting directly from vulcanism, others caused by depositional processes occur within the Sierra. Between the old composite volcanoes and young cinder cones flattish surfaces have been formed first by ash and cinder fall and later by aeolian and alluvial deposition from surrounding slopes. Such surfaces, which compose only a small percentage of total land area, are the agriculturally important sections of the Sierra. Some form saddles or cols between adjacent hills; the larger plains form basins of interior drainage. The largest basins are Llano Grande, southeast of Charapan; the Plan de Nurío; that of Paracho, Aranza, and Cherán; the plain of Nahuatzen; of Sevina; of Paracho; etc. (map 2; pl. 1). Minor forms include dissected aprons of alluvium and semiconsolidated ash at the base of volcanoes and steep-sided arroyos eroded into alluvium in the upper parts of the basin plains.

One of the most characteristic physical features of the Sierra is the paucity of perennial streams and lakes. Although this is an area of moderate summer precipitation, the porous volcanic surface quickly absorbs most of the available moisture. A few permanent, spring-fed streams occur on the northern and western flanks of Cerro de Patamban and on the western and southern sides of Cerro de Tancítaro. Small springs occur on [312] the flanks of the old composite volcanoes, whose porous rocks form a reservoir of rain water. Such springs afford the sole water supply for many Sierra villages. Only on the edges of the Sierra plateau, at the contact of porous and impervious rock layers, do large springs occur.

**The Lake area.**—At the eastern edge of the Sierra exists a depression filled by Lake Pátzcuaro. Sierran geomorphology (young and old volcanic forms) almost surrounds the lake, but predominates on its northern, western, and southern shores. Twelve kilometers south of Pátzcuaro small Lake Zirahuén, within the eastern prong of the Sierra, appears to have been formed by a lava-blocked

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[4] An excellent specimen of charred maize so embedded is in the Museo Regional Michoacano, Morelia.

[P. 36]

133 stream.[5] Both lakes present similar shore features—moderately steep banks alternating with wide, flattish delta fans.

In other respects the two lakes are distinct. Pátzcuaro is shallow (deepest point in the southern arm, 20 feet; in the northern part, 50 feet, in 1941); Zirahuén is relatively deep (148 feet, maximum sounding). Moreover, while the level of Zirahuén (6,953 feet in 1942) is relatively stable, that of Pátzcuaro (6,671 feet in 1942) has fluctuated frequently in historical times. Since 1939 the lake level has descended nearly 4 feet, exposing large areas of mud flats along the shore and revealing one new island (Pastora) near the southwest corner of the lake (pl. 1). In some places the descending waters have uncovered old tree stumps, indicating that formerly the lake level was even lower than at present. On the other hand, the western portion of the large lacustrine plain of Chapultepec in historical times formed an eastward extension of the lake's southeast arm, denoting a former level higher than the present one.[6] The cause of flucuation in level is not clear. [132] De Buen (1944), judging from meteorological data (1939–43), has suggested a correlation between rainfall and evaporation variation on the one hand and lake surface fluctuation on the other. The excessive evaporation and low rainfall during those years likely affected lake volume, but normal precipitation and evaporation in following years have not halted the gradual decrease in lake level. Moreover, if fluctuation is caused by meteorological elements, one would expect neighboring lakes to be similarly affected. Periodic clearing and clogging of sublacustrine crevices, often associated with lakes of volcanic origin, is another popular hypothesis applied to Lake Pátzcuaro.

The lake contains 10 islets on which live some 133 of the most conservative of the Tarascan people— 361 the fishermen. The four islands off the Tarú-k'éri Peninsula (Pacanda, Yunuén, Tecuena, and Janitzio) are old volcanic hilltops with steep banks and, with the exception of flat-topped Pacanda, with little land suitable for cultivation. In the

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[5] De Buen (1944) assigns the origin of all present and former lakes in the western portion of the Mesa Central to disruption of normal drainage by vulcanism. He also suggests that Lakes Pátzcuaro, Zirahuén, Cuitzeo, and Yuriria were formed from portions of Río Lerma drainage, since the fish *Chirostoma*, abundant in Lake Chapala and the Lerma, is found also in these lakes, the number of species decreasing from Chapala (16) to Zirahuén (2).

[6] The 16th-century map of Lake Pátzcuaro which accompanies the Relación de Michoacán (1903) clearly shows the former extent of the southeastern arm. At the time of the Conquest this section included the island of Apuntato, now a hill some 300 m. from the water's edge.

[P. 4a]

133 [361] shallow southern part of the lake lie Jarácuaro, the largest of the group, and the newly formed Pastora. (The former island of Copujo is now attached to the mainland.) Both islands are low, composed of semiconsolidated alluvial materials. Along the southern shore only low marsh now separates the Urandén islets (low volcanic hills) from the mainland (pl. 1).

**The southern escarpment.**—Although geologically similar to the Sierra, the abrupt southern escarpment, which forms part of the Mesa Central's southern wall, constitutes a distinct physiographic area. Pleistocene and Recent vulcanism continues from the Sierra to the Balsas and Tepalcatepec Rivers, Jorullo having been the most recent volcanic activity on the escarpment. The canyons formed by deeply entrenched spring-fed streams are the escarpment's salient features. Some barrancas exceed 500 feet in depth. The upper tributaries of the escarpment streams are eroding headwardly into the Sierra, capturing enclosed basins and intermittent water courses.[7] Above the barranca area shallow basins occur in the upper portion of the escarpment. Probably of volcanic origin, these flattish-floored valleys are now tapped by escarpment streams. Typical examples are the plains surrounding Uruapan, those below Peribán and Los Reyes, the valleys of Tingambato and Tacambaro, all important sites of former Tarascan settlement in the *tierra templada.*

**The northern plateau area.**—The former Tarascan area north of the Sierra forms part of the interior plateau county of Central Mexico. For the most part physiography is characterized by old volcanic hills and mountains separated by flat to rolling plains country. The part of this region formerly inhabited by Tarascans extends from Lake Chapala east to the Sierra de Ozumatlán and from the Sierra north to the Lerma River. (The low areas near the river and its tributaries are often termed the "Bajío.") A narrow belt of the hill and plains landscape also extends south from Lake Chapala to include the Cotija-Tingüindín area along the western side of the Sierra. Average elevations in the interior plateau decrease from 7,200 feet along the flanks of the Sierra de Ozumatlán to 5,000 feet at Lake Chapala. The

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[7] For example, this phenomenon has occurred at the southwestern edge of the Sierra, where a tributary of the Tepalcatepec has apparently captured the drainage of the structural basin which runs east-west from Parangaricutiro to Peribán.

[P. 46]

133 higher hills and mountains rise 2,600 to 4,000 feet above the surrounding plains.

The young volcanic land forms found in the Sierra are lacking in much of the northern area, where the principal elevations consist of eroded composite Tertiary volcanoes. A few tongues of Recent lava flow from the Sierra into the northern edge of the plains, and cinder cones extend northward from El Zirate. Many lakes, some occupying structural basins, dot the northern area. The extensive sections of old alluvium, which form a good part of the plains, probably represent beds of Pleistocene lakes. At the northern and northwestern base of the Sierra many spring-fed lakes and marshes existed in historical times, e. g., Ciénaga de Zacapu, de Tangancícuaro, de Chapala, etc. The lacustrine basins and the borders of the former lakes and marshes were the major areas of Spanish settlement in the Tarascan North, for both afforded year-round pasture and sites for irrigated wheat farms. Some marshy sections [311] still exist, but natural desiccation and artifical drainage have converted much of the wet area to dry farmland. The once extensive chain of lakes in the Cotija graben, west of the Sierra, has almost completely disappeared, and the marshes of Zacapu, around which are grouped a few remnant Tarascan pueblos, have been converted into a large farming area.

A unique physiographic subarea of the northern zone, called "La Cañada," a narrow east-west depression at the northern base of the Sierra, is still one of the significant Tarascan regions. The valley floor, 10 km. long and 2 km. wide, decreases rapidly in altitude from 6,360 feet at its eastern end to 5,840 feet at Chilchota, near the western extremity (pl. 1). The western end of the valley is marked by an ancient lava flow, which once partially blocked normal drainage. Subsequent deposition of alluvium (possibly lacustrine) behind the lava dam has resulted in the present wide flattish floor of the valley's western half. Today the stream draining the valley flows subsequently through a deep gorge cut through the northern end of the lava flow. The numerous intermittent streams which descend from the adjacent hills have built up small alluvial fans along the valley sides. Like other areas at the edge of the Sierra, [312] La Cañada is favored by numerous large springs issuing from fissures at the southern and eastern [361] borders of the depression. Alluvium and water

133 have attracted human settlement to the valley
[312] since prehistoric times. Sierra Tarascans, who
[361] call La Cañada "Eráśemen" (view from above),
[102] probably visited the valley for chile and early
maize before the Spanish Conquest. Spaniards immediately seized the well-watered plains near Chilchota for wheat fields. Today La Cañada is a garden spot of orchards and wheat fields amid rocky volcanic hills.

## CLIMATE AND VEGETATION

132 **Meteorological data.**—In dealing with meteorology, northwestern Michoacán will be treated as a whole; attempts will be made to point out regional differences in temperature and rainfall. Meteorological stations in the area are few; data are entirely lacking for the Sierra. Consequently, only general statements can be made concerning the weather and climate of modern Tarasca.

[P. 5-b]

132 Annual temperature ranges throughout the area are small.[8] Lowest winter temperatures occur in the Sierra, the Tarascan *tierra fría*, where nocturnal freezing and frosts are common from November to March[9] (map 3). Winter temperatures in the northern plateau and Lake Pátzcuaro areas are somewhat milder than those of the Sierra (January averages: Zamora, 16.2° C.; Zinapecuaro, 15.9°; Pátzcuaro, 13.9°), and the number of days with frost is smaller. The winters of the upper escarpment (*tierra templada*) are frost-free (January average for Uruapan, 16.0° C.). Summer

[Text continues top of p. 6a --- Analyst]

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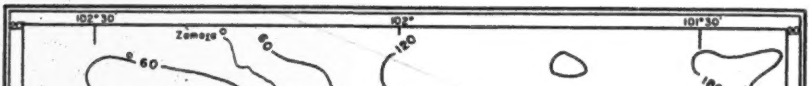
[8] Data from seven stations in the area give annual temperature ranges from 3.9° C. (Hacienda Tequecaran, 10 km. south of Uruapan) to 7.7° C. (Zacapu). The meteorological data given in text are taken from Atlas climatológico de México (Mexico. Servicio meteorlogico mexicano, 1939).

[9] The mining town of Tlalpujahua (elev. 8,500 feet), on the eastern border of Michoacán, 140 km. east of Pátzcuaro, may afford temperature data similar to that of the Sierra. December and January are the coldest months, with average monthly temperatures of 11.8° and 11.5°, respectively. Maximum temperatures occur in April and May (15.0° and 15.9° C.), which are probably somewhat lower than those occurring in the Sierra.


102°30'
102°
101°30'
20
19° 30'
Zamora
Terecuato
Chilchota
Tingüindín
C. DE PATAMBAN
Tanaco
Zacapu
Coeneo
Cheran
Quiroga
Tzintzuntzan
Atapan
Charapan
Los Reyes
Zirosto
Cumachuén
Tingambato
Pátzcuaro
Zirahuén
Santa Juana
C. DE TANCITARO
Uruapan
Tancítaro
Ario
Tacámbaro
15
30
60
120
180
0 10 20 mi.
0 10 20 km.

MAP 3.—Length of frost season in northwest Michoacán. Isopleths indicate the average length of annual period in days, in which frosts occur. Data are mainly from reckonings by local inhabitants.

132 temperatures are high over the entire Tarascan area, but less so in the higher Sierra. The warmest months are April and May, the period immediately before the rainy summer (May average temperatures: Zacapu, 19.1° C.; Uruapan, 22.4°; Zamora, 23.2°; Cuitzeo, 23.2°; Pátzcuaro, 19.9°).

Precipitation in the area, as in most parts of Mexico, is seasonal, 80 percent of the annual total falling mainly as convectional thundershowers in June, July, August, and September. In the Sierra the summer rains often continue as drizzles for a period of 3 to 4 days, suggesting local cyclonic origin. Occasionally during the months of December and January light winter rains, called *cabañuelas*, or janínȼerkua, occur. These rains prevail over most of western Mexico when cyclonic disturbances over the Pacific reach inland, a condition which occurs every 3 or 4 years.[10] Such precipitation often falls as snow on the higher volcanoes in the Sierra, such as Tancítaro, Patamban, and Quinseo. Freak snow storms have been recorded in historical times; in September 1887 several inches of snow fell in the vicinity of Charapan and San Felipe, caving roofs and destroying the maize crop.[11] Another curious meteorological phenomenon of the Sierra is the prevalence of radiation fog in the low basins from late summer to early winter. Forming in the early morning hours (after 1 a. m.), the fog evaporates by noon. Its presence lowers average daily temperatures and prevents rapid evaporation of surface moisture.[12]

Annual precipitation in the area north and east of the Sierra averages from 750 to 850 mm. A greater amount is recorded around Lake Pátzcuaro (town of Pátzcuaro, 1,109 mm.), and even more probably falls in the Sierra, where no records exist. The greatest precipitation in Tarasca is recorded along the southern (windward) side of the Sierra in the upper escarpment zone. (Average annual totals for Uruapan, 1,683 mm.; Ario de Rosales, 1,225 mm.; Tacámbaro, 1,240 mm.)

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[10] In northwestern Mexico, particularly in Sonora and the Sierra Madre Occidental, the winter cyclonic storms are called *equipatas*. Although they are part of the same frontal system, the *equipatas* occur more frequently than the *cabañuelas* since northwestern Mexico is nearer the North Pacific center of frontogenesis.

[11] Lumholtz (1902, vol. 2, p. 365) states that water has been known to freeze in Cherán and Zacapu on June 19.

[12] The Sierra fogs are often mentioned by colonial chroniclers. One, describing the Charapan area in 1789: " . . . *continualmente se ve el terreno cubierto de neblas, que evaporan y exala la humedad de la tierra*" (AGN Historia, vol. 73, f. 219).

132 137 **Climatic areas and associated vegetation.**—Sufficient statistical data are not available to construct accurately a map showing climatic types in the Tarascan area. Using (1) the available statistics from the few existing stations, (2) vegetation boundaries taken from field observations and aerial photographs, and (3) elevations from topographic maps compiled from aerial photography, an attempt has been made to locate climatic areas based on the Köppen system (map 4).

**The Sierra.**—The Cwb and Cwc climatic types of Köppen[13] correspond to the *tierra fría* of the Tarascans—the Sierra, its eastern extension (including the Sierra de Ozumatlán), and the southeastern part of the northern plateau area. A mixed oak-pine forest forms the dominant vegetation of the Sierra and its eastern extension, and corresponds to the higher and colder phase of the Cwb climatic zone. (Cf. maps 4 and 5.) *Pinus* 137 *leiophylla* (pino chino) and *P. michoacana* var. *cornuta* (pino lacio) are the principal pines (pʻukúri) of the Sierra (Martínez, 1945). (Pl. 1.) The former species is the main turpentine producer, while the latter, a straight, tall tree, affords the best lumber. Minor species of pines found in the Sierra include *P. teocote*, *P. pseudostrobus*, and in the upper escarpment zone, the subtropical pine *P. oocarpa*. Even at high altitudes the pines rarely form solid stands, but are mixed with numerous species of oak, the latter dominent at lower altitudes, the former at higher elevations. Some 30 species of oak (uríkua, tukús, šaɹári), both deciduous and persistent, occur in the Sierra and adjacent areas. Among the more common are *Quercus fulva*, *Q. acuminata*, *Q. circinata*, *Q. laxa*, *Q. crassipes*, and *Q. pandurata* (Trelease, 1924). Often mixed with pine and oak are madroño (panáŋksʌ; *Arbutus* sp.); various laurels (Lauraceae); many hydrophytes in barranca bottoms, such as jaboncillo (sápu), palo blanco (uárpit-uku; *Alnus* sp.), palo colorado (čarápit-uku).

On lower slopes one often sees the Mexican "crab apple" (actually a hawthorne) or tejocote (kaɹás; *Crataegus mexicana*) and the "cherry" or capulín (šéngua; *Prunus capuli*), both of which

[Text continues top of p. 8a -- Analyst]

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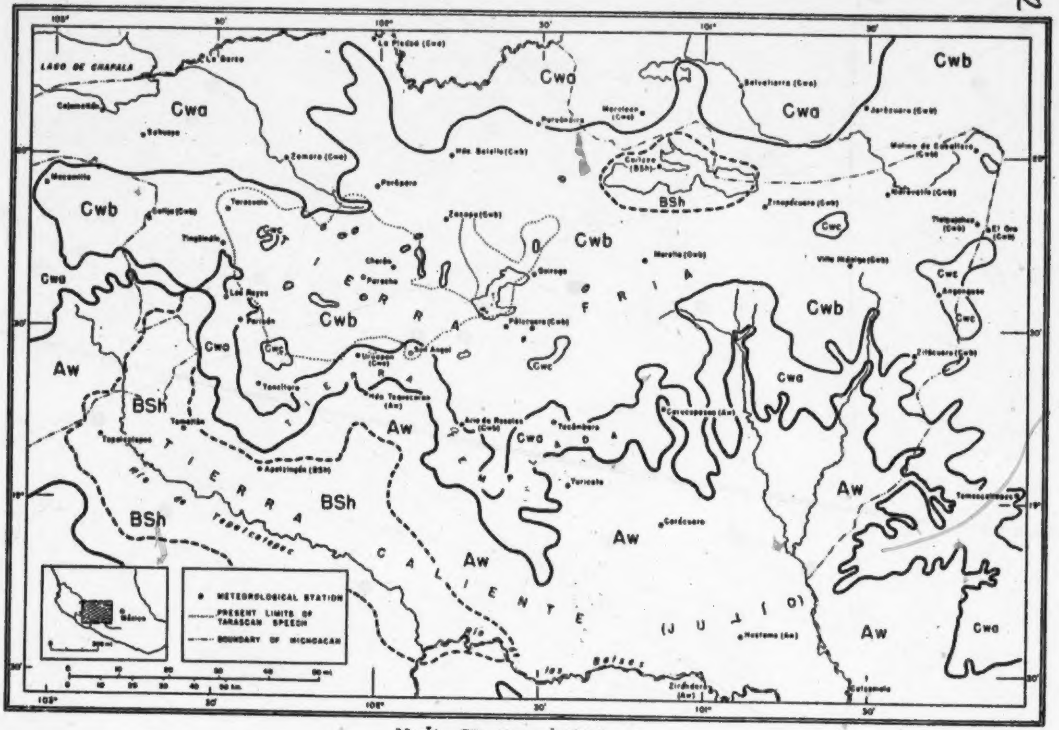
[13] Mathematical values of Köppen symbols: *C*, temperature of coldest month between −3° and 18° C.; *w*, dry winter, rainy summer; *b*, temperature of warmest month less than 22° C.; *c*, temperature of coldest month above −38° C., and mean temperature of less than 4 months out of the year is more than 10° C.

[P. 7]


LAGO DE CHAPALA
Cwa
Cwb
Cwc
Aw
BSh
SIERRA
FRIA
TIERRA CALIENTE
(JUTIO)
Río de Tepalcatepec
Río de las Balsas
La Piedad (Cwa)
Zamora (Cwa)
Puruándiro
Morelia (Cwb)
Cuitzeo (BSh)
Pátzcuaro (Cwb)
Uruapan (Cwa)
Zacapu (Cwb)
Apatzingán (BSh)
Tepalcatepec
Huetamo (Aw)
Zitácuaro (Cwb)
Los Reyes
Jiquilpan
Cotija (Cwb)
Tacámbaro
Ario de Rosales (Cwb)
Turicato
Carácuaro
Zirándaro (Aw)
Coalcomán
METEOROLOGICAL STATION
PRESENT LIMITS OF TARASCAN SPEECH
BOUNDARY OF MICHOACAN
México
103°
102°
101°
20°
19°
30'
0 10 20 30 40 50 mi.
0 10 20 30 40 50 km.

Map 4.—Climatic map of Michoacán.

137 are frequently semicultivated in hedgerows and in house lots. Agave (akámba; *A. latissima*, *A. americana*) is also a frequent hedge plant found particularly on the outskirts of settlements, and the tree yucca or izote (¢ámbasᴀ; *Yucca australis*), although more common at lower altitudes, is often seen in Sierra villages. Understory vegetation in the oak-pine zone is sparse, possibly owing to the annual burning of herbaceous plants in the forest to improve summer forage. Some of the more prominent understory plants are *zarzamora* (¢ʻtún; *Rubus* sp.), a wild blackberry especially abundant along hedgerows, and wild grape vines (*Vitis* sp.). Various epiphytes, such as orchids of many species, are found on the trunks and branches of pine and oak throughout the Sierra.

[132] Although meteorological data are lacking, the climate of elevations above 10,000 feet is possibly Cwc, i. e., cold winters and cool summers (map 4). Such elevations occur on the upper slopes of the higher volcanoes, where snow occasionally falls and where fir (*Abies religiosa*) forms the dominant vegetation. On slopes above 8,700 feet this tree (*pinabete*, tʻkúmbu) starts to appear among pine and oak. At 10,000 feet solid stands of fir begin and continue to the mountain peaks, where high altitude pine (*P. hartwegii*) has gained a foothold in cracks and crevices in rocky cliffs. Understory vegetation in the fir forest consists of various herbaceous plants, including a bunchgrass called *zacate* or jóčin (*Muhlenbergia macroura*). The green shoots of jóčin afford the principal forage for sheep and goat herds which are grazed on the high slopes of Cerro de Patamban and (before the eruption of Paricutin) on Cerro de Tancítaro.

The type of original vegetation in the basin plains within the Sierra is problematical. Probably cleared and cultivated for more than 300 years, these plains now show little evidence of the original vegetation cover. The dark-colored soil of the plains suggests the former presence of a grass cover, possibly with scattered oaks and pines.

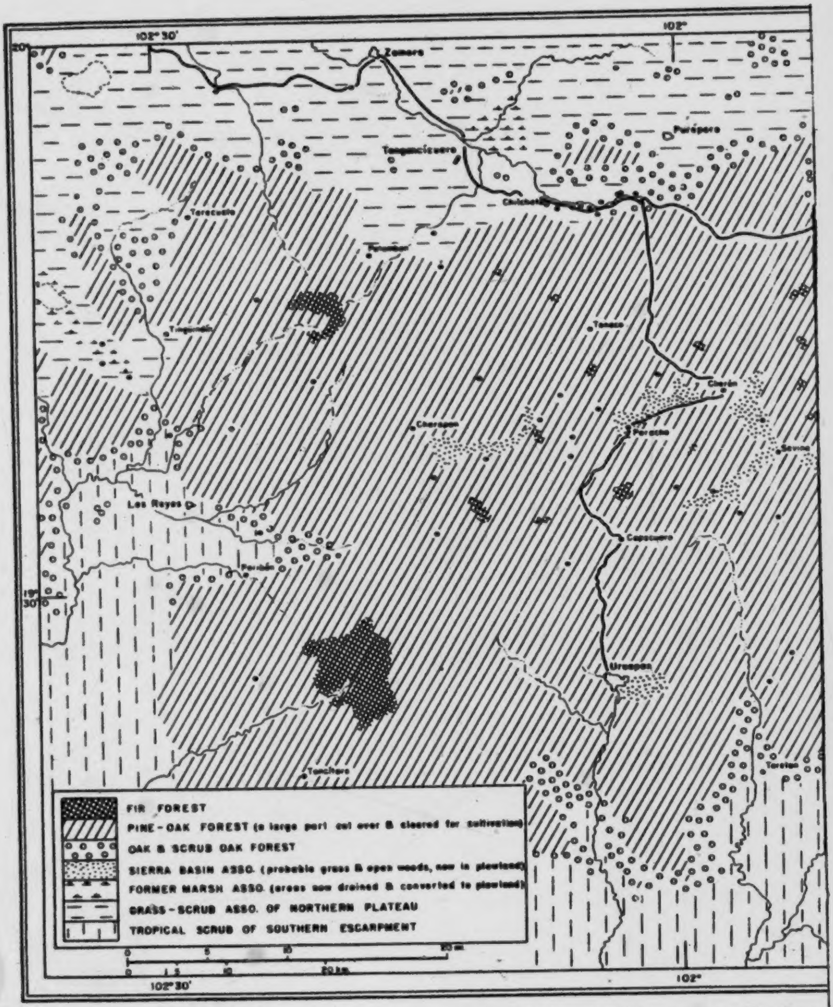
**The Lake district.**—According to temperature [132] figures, the shores of Lake Pátzcuaro fall within the *tierra fría* climate (Cwb). Owing to higher winter temperatures than those experienced in the Sierra, and to absence of fog, the Lake district enjoys a warm phase of Cwb (possibly transitional between Cwb and Cwa). Oak and associated broadleaf trees, such as madroño, jaboncillo, etc.,

[P.8b]

137 form the dominant plant complex of a belt 3 km. wide around the lake. Moreover, colorín (p‘oɹén¢́ʌ; *Erythrina americana*), casahuate (*Ipomoea murucoides*), and zapote blanco (uríata; *Casimiroa edulis*), all characteristic of the warmer sections of the northern plateau, are common hedge plants in the Lake area. Along the lake shore, water-loving plants, including a willow (taɹímu; *Salix bonplandiana*), shrubs of "tepozán" (*Buddleia* sp.), and clumps of bamboolike carrizo (p‘atámu; *Arundo donax*) are not uncommon; while in marshy sections canebrakes (*tule* or p’a¢ímu; *Cyperus thrysiflorus*) abound. Other aquatic plants include various waterlilies and hyacinths (*Nymphaea* sp.; *Eichhornia speciosa*). Possibly a mixed pine-oak forest once covered the lower slopes bordering the lake, but, if so, the pines have long since been destroyed for firewood and lumber. Occasionally lone specimens of *Pinus leiophylla* are found on the outskirts of lake villages.

[132] **The northern plateau.**—The Cwb climate extends northward from the Sierra into the southeastern part of the northern plateau area. In the middle and lower Río Lerma Basin (Bajío) and in La Cañada, however, the Cwa climate of the *tierra templada* occurs. In both Cwa and Cwb areas of the northern plateau, oak and pine forests occupy only the summits of the higher hills, below which exist stands of oak and madroño. The lower slopes and plains carry an association of grass and shrub, the latter consisting of casahuate, zapote blanco, tejocote, palo blanco (*Lysiloma candida*), granjeno (*Celtis pallida*), jara amarillo (tóksten; *Senecio salignus*), all typical of the more humid portions of the central plateau. Xerophytes, such as huisache (*Acacia* sp.), mesquite (*Prosopis juliflora*), and various cacti (mainly *Opuntieae*), are common. In the plains, fresnos (padámu; *Fraxinus* sp.) form gallery forests along streams, and in draws within the hills hydrophytes, such as wild ahuacate and other laurels, predominate. Formerly extensive meadows existed at the edge of swamps and lakes, particularly in the lowlands east of Lake Chapala and the well-watered plains near the northern edge of the Sierra. In the northern plateau pine and oak forests were formerly more extensive than at present. Many of the hilltops north of the present México-Guadalajara highway, which are now barren of arboreal vegetation, were once

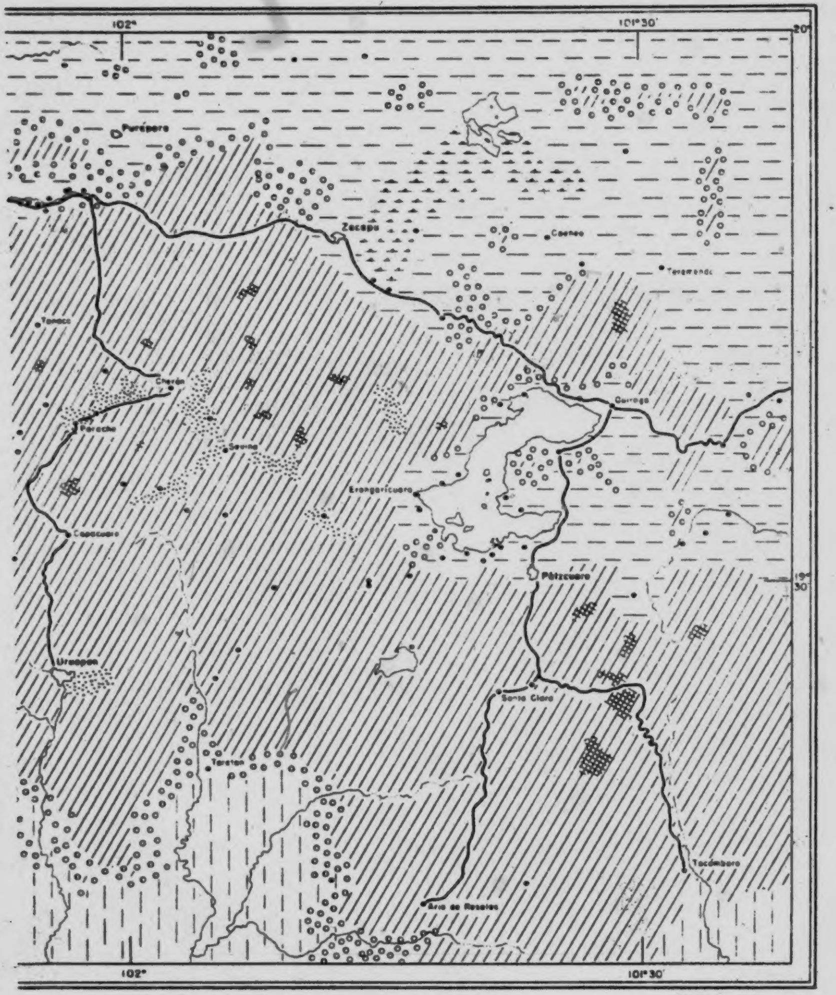
[TEXT CONTINUES TOP OF P. 9a--ANALYST]


102°30'
102°
20°
19° 30'
Zamora
Tangancicuaro
Purepero
Chilchota
Tarecuato
Patamban
Tinguindin
Tanaco
Cheran
Charapan
Paracho
Sevina
Los Reyes
Periban
Capacuaro
Uruapan
Tancitaro
Taretan
FIR FOREST
PINE-OAK FOREST (a large part cut over & cleared for cultivation)
OAK & SCRUB OAK FOREST
SIERRA BASIN ASSO. (probable grass & open woods, now in plowland)
FORMER MARSH ASSO. (areas now drained & converted to plowland)
GRASS-SCRUB ASSO. OF NORTHERN PLATEAU
TROPICAL SCRUB OF SOUTHERN ESCARPMENT
0 5 10 20 mi.
0 1 5 10 20 km.

MAP 5.—Vegetation types in the modern Tarascan area. Data from s

[Facing page 8; section A.]

137


102°
101°30'
20°
19° 30'
Purépero
Zacapu
Coeneo
Teremendo
Tanaco
Cherán
Paracho
Sevina
Capacuaro
Uruapan
Erongarícuaro
Quiroga
Pátzcuaro
Santa Clara
Taretan
Ario de Rosales
Tacámbaro
102°
101°30'

modern Tarascan area. Data from aerial photographs and field notes.

[Facing page 8; section B]

137 covered with pine and oak within the memory of living inhabitants. Increased cultivation of slopes and constant cutting for firewood and charcoal will soon destroy the greater part of the pine-oak remnants in the northern plateau.

**The escarpment zone.**—South of the Sierra lies
132 a series of climatic types arranged in altitudinal sequence. The upper part of the escarpment (5,600 to 3,600 ft.) is characterized by a narrow belt of Cwa (*tierra templada*) climate, which is followed abruptly by the subhumid *tierra caliente* (below 3,600 feet), or Aw. Below 2,000 feet within the Tepalcatepec and Balsas Basins, a semiarid tropical climate (BSh) prevails.

The pine-oak association of the Sierra spills
137 over onto the upper escarpment, but the subtropical *Pinus oocarpus* becomes the dominant pine. Between 4,600 and 3,600 feet, pines disappear, leaving an open oak forest mixed with subtropical and tropical plants of southern Mexico. At lower elevations the latter plants become dominant.[14]

## SOILS

Three soil types, which tend to coincide with
134 climate and vegetation, predominate in the Taras-
132 can area: (1) a yellowish-brown leached soil of
137 the upper mountain slopes (Cwb to Cwc, pine-fir cover); (2) a dark, fine sandy loam (t'upúri) of the lower slopes and basins in the Sierra (Cwb, oak-pine, probably grass vegetation); and (3) the reddish-brown clay soil (čaránda) of the lower altitudes (warm phase of Cwb, Cwa, broadleaf vegetation) around Lake Pátzcuaro, in the lower elevations of the northern plateau, and in the escarpment zone (map 6). Transitional and special soil types also occur; for instance, many of the Sierra soils are termed "charandosas," having a higher clay content than the t'upúri loams.

**Yellowish-brown soil.**—This soil develops in
134 high altitudes under seasonally humid conditions

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[14] The tropical vegetation of the escarpment is characterized by a great variety of genera and species. The most common plants include the milky-sapped trees and shrubs of the family Moraceae—comuchin (*Ficus padifolia*), siranda (*F. petiolaris*), saruma (*Cecropia mexicana*); the pod-bearing Mimosaceae—timbin (*Mimosa stipitata*), guaje (*Leucaena sp.*), huisache (*Acacia sp.*), tepehuaje (*Lysiloma sp.*), parota (*Enterolobium cyclocarpum*), timuche (*Pithecellobium lanceolatum*), guamuchil (*Pithecellobium dulce*), *Calliandra* sp.; the pod-bearing Caesalpiniaceae—habilla (*Cassia occidentalis*), cascalote (*Caesalpinia coriaria*), etc.; the edible fruit-bearing plants of the Annonaceae—chirimoya (*Annona cherimolia*); of the Lauraceae—ahuacate (*Persea americana*); of the Sapotaceae—chicozapote (*Achras sapota*), mamey (*Calocarpum mammosum*); of the Anacardiaceae—ciruela, cupu (*Spondias mombin*); of the Mirtaceae—guayaba (*Psidium guayaba*); and the copal-bearing Burseraceae—copal (*Elaphrium jorullense*).

[P. 9-b]

134 and fir-pine vegetation. It is the soil of the higher hillside maize plots in the Sierra; leached and infertile, it will produce crops for no longer than 4 or 5 years, after which the field is abandoned. The fine, sandy topsoil, however, is moisture retentive, and is therefore known as "tierra de humedad," in which crops can be planted 2 months before the rains.[15] Podzolic soils (uncultivated) probably occur above 10,000 feet in the fir forest.

**T'upúri.**—The most productive of the highland "humedad" soils is t'upúri. Like the yellowish-brown soil, the texture of the topsoil is extremely fine. (Analyzed as fine sandy loam: 56 percent fine sand, 23 percent silt, 21 percent clay, 1 percent coarse gravel.) The surface drys to a fine powder and acts as an insulator, preventing the evaporation of moisture from the soil beneath. Consequently, in April and May near the end of the dry season the t'upúri soil is well moist 3 inches below the surface. T'upúri usually occurs between 6,500 and 8,000 feet on both the lower slopes and in the basin plains. Being porous, the soil soaks up moisture rapidly, preventing serious sheet or gully erosion even on the steeper slopes. Generally, the basin t'upúri is more fertile than the yellowish-brown, the topsoil of the former having a high humus content (6 percent), a fair content of critical elements (e. g. 0.09 percent N), but a deficiency of lime (0.31 percent). Various subtypes of t'upúri occur, differences being based mainly on soil texture. At the base of slopes or on alluvial fans the topsoil is often partially composed of coarse volcanic cinder. Such soil is locally called "cascajo," or gravel. Other subtypes are characterized by an increase in clay content. These occur on the lower slopes, and are sometimes referred to as "tierra charandosa."[16]

**Čaránda.**—This is a reddish-brown clay soil, which prevails below 6,500 feet and develops from the spheroidal weathering of volcanic rock under warm summer and mild winter temperatures and a cover of broadleaf plants. (Textural content: 39 percent sand, 26 percent silt, 35 percent clay.)

[TEXT CONTINUES TOP OF P. 11a — ANALYST]

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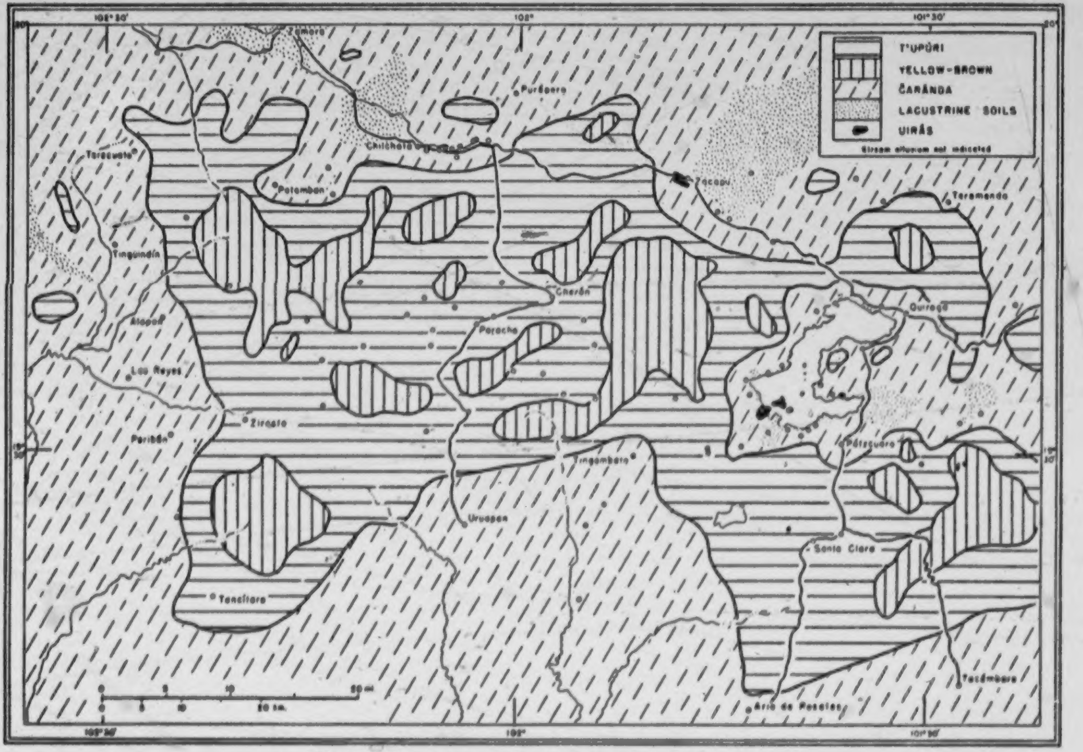
[15] Surface soil samples (to a depth of 25 cm. below surface) were taken by the writer in the Sierra and Lake areas and were analyzed by the Comisión Nacional de Irrigación, Dirección General de Agroeconómica, México, D. F. Texturally the highland yellow-brown soils are sandy loams, (60 percent fine sand, 20 percent clay, 20 percent silt, are highly water-retentive (30 percent), and are low in humus (4 to 10 percent). All soils analyzed (including t'upúri and čaránda types) were low in lime content (0.26 to 0.34 percent), and slightly alkaline to alkaline (pH values: yellow-brown mountain soils, 7.22 to 7.26; t'upúri, 7.44 to 7.71; čaránda, 7.21 to 7.42; uirás, 8.06 to 8.13). Since profiles were not determined, classification according to world soil groups is not possible at this time.


102° 30'
102°
101° 30'
20°
19° 30'
T'UPŪRI
YELLOW-BROWN
ČARĀNDA
LACUSTRINE SOILS
UIRĀS
Stream alluvium not indicated
Zamora
Purépero
Tarecuato
Chilchota
Potamban
Tacapu
Teremendo
Tinguindín
Cherán
Atapan
Paracho
Quiroga
Los Reyes
Zirosto
Peribán
Pátzcuaro
Tingambato
Uruapan
Santa Clara
Tancítaro
Tacámbaro
Ario de Rosales
0 5 10 20 mi.
0 5 10 20 km.

MAP 6.—Soil types in the modern Tarascan area. Data from field notes.

134 Large cracks occur in the soil surface during the months of March and April, and moisture is evaporated from a depth of many inches. Consequently čaránda is a "temporal" soil, i. e., it can be planted only after the rains begin. Because of its clayey texture, it erodes easily once the plant cover is stripped and the soil structure is destroyed. The cultivated slopes around Lake Pátzcuaro, for example, are one of the worst-eroded agricultural areas of Mexico. Wherever čaránda soils occur, the surface is scarred by gullies, which are becoming a characteristic landscape feature in the low areas surrounding the Sierra.

134 **Minor soil types.**—Among the most fertile in
241 the Tarascan area are a few minor soil types.
These include the alluvium in La Cañada and the lacustrine deposits around the shores of Lake Pátzcuaro and within the recently desiccated Zacapu Basin. Containing abundant organic

[TEXT CONTINUES TOP OF P. 11b — ANALYST]

## TARASCAN POPULATION

### THE RECESSION OF NATIVE SPEECH

191 One of the outstanding developments in Tarascan
history has been the drastic areal recession
178 of indigenous speech. Today the territory in
which Tarascan (P‘oɹépeča) is spoken represents
171 only one-fifteenth of its pre-Conquest extent.
The pre-Spanish linguistic area (discussed by Brand, 1944) included most of the present State of Michoacán, except the Pacific slope of the Sierra Madre del Sur between Colima and the lower Balsas (map 7). The political limits of the Tarascan state, however, extended beyond the language boundary: in the west into Jalisco, in the south to the Pacific, and in the north to the Bajío of Guanajuato (Brand, 1944; cf. Stanislawski, 1947 a). The Tarascan cultural core centered in the north-central part of the Empire, comprising the Lake Pátzcuaro-Cuitzeo area and the pine forests of the Sierra and the upper escarpment zone (Stanislawski, 1947 a). Tarascans extended their speech southward into the *tierra caliente* (basins of the Tepalcatepec and Balsas) by colonization from the highlands during the 14th and early 15th centuries. Likewise, the P‘oɹépeča settlements around the eastern end of Lake Chapala and south thereof (Mazamitla) appear to have been 15th-century colonies. Within the
191 pre-Conquest area various islands of foreign
tongues existed; these represented colonies settled
563 with permission of Tarascan chiefs. There were

[TEXT CONTINUES BOTTOM OF P. 11b — ANALYST]

[P. 11-b]

134 [241] material and essential chemical elements, most of these soils are cropped annually without fallow. A peculiar soil type, called *uirás*, occurs near the edge of a lava flow on the southwestern shore of Lake Pátzcuaro, on Jarácuaro Island, and near Ihuatzio. The subsoil is a fibery-textured white clay (35.4 percent fine clay), from which the whitish-gray adobe bricks of Jarácuaro and Ihuatzio are made; the topsoil, when mixed with lacustrine deposits (as on Jarácuaro Island), forms a fertile loam extremely high in organic matter (nearly 5 percent) and calcium carbonate (7.7 percent). On the other hand, when the parent material lies close to the surface (as around Arócutin), the *uirás* is one of the poorest soils in the vicinity.[16]

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[16] A similar soil type occurs at the edge of a lava flow along the highway on the outskirts of Zacapu. The relation between vulcanism and the formation of *uirás* is not clear.

## TARASCAN
## POPULATION

191 563 three inclusions of Matlaltzinca or Pirinda (Otomí stock): (1) the largest, near present Morelia, from Undameo northeast to Charo, (2) at Taimeo, southeast of Lake Cuitzeo, and (3) at Huetamo near the Balsas.[17] Moreover, a group of Apaneca colonists lived at Guayameo, near Sirándaro on the Balsas, and an islet of Teco occurred between Tancítaro and Uruapan.[18]

161 Various factors contributed to the areal retrogression of Tarascans during the Spanish colonial and postcolonial periods. One factor was actual decrease of Indian population caused mainly by European diseases. The population of some [161] areas was further weakened or depleted by migration of Tarascans as laborers to distant mining and agricultural centers. Moreover, Spanish and mulatto settlement within the indigenous area was a powerful force of hispanicization; wherever stock-raising estancias or sugar haciendas were established, native speech slowly disappeared. Conversely, in those areas shunned [191] by Spanish settlers, Tarascan has been preserved to this day.

177 164 161 The most serious shock which the indigenous cultures suffered from Spanish contact was the frightful toll taken by the contagious European diseases that became epidemic throughout central

[Text continues bottom p. 12b — Analyst]

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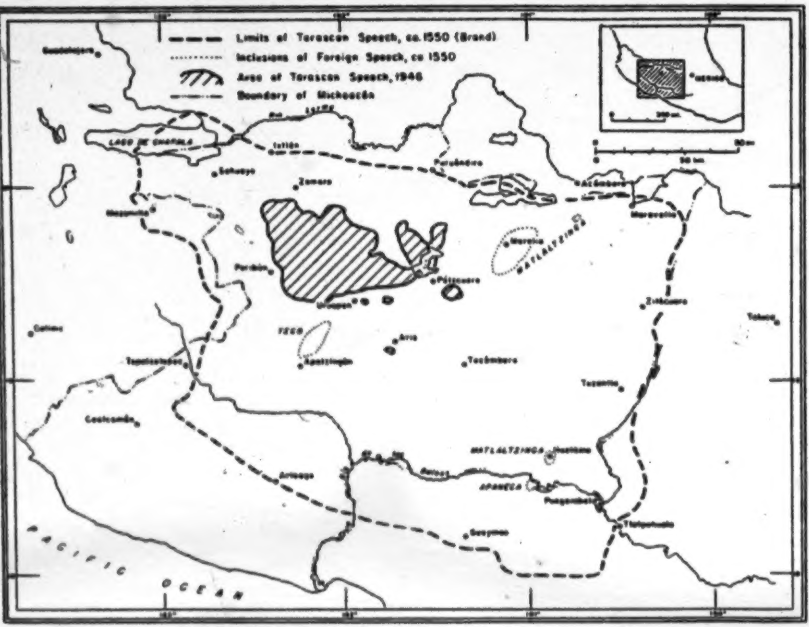
[17] Data obtained from the following Relaciones Geográficas in Mus. Nac., leg. 102: Rel. de Necotlán and Rel. de Cuseo; Mus. Nac., leg. 98, Rel. de Charo Matlalzinga.

[18] Mus. Nac., leg. 102, Rel. de Sirándaro y Guayameo; Ponce Relación, 1872, vol. 1, p. 131; Mus. Nac., Col. de Gómez Orozco, vol. 1, Rel. de Tancítaro.

**4: West** **K-5** **(1946) 1948** **NU34 Tarasco NU34**

[P. 12 a]

191
131
563
177


Limits of Tarascan Speech, ca. 1550 (Brand)
Inclusions of Foreign Speech, ca 1550
Area of Tarascan Speech, 1946
Boundary of Michoacán
Guadalajara
Lago de Chapala
Sahuayo
Zamora
Puruándiro
Acámbaro
Maravatío
Morelia
Matlaltzinga
Pátzcuaro
Uruapan
Zitácuaro
Toluca
Colima
Teco
Ario
Apatzingán
Tacámbaro
Tuzantla
Coalcomán
Arteaga
Balsas
Matlaltzinga
Huetamo
Apaneca
Pungarabato
Pacific Ocean

**Map 7.—Pre-Conquest and modern boundaries of Tarascan speech.**

161 New Spain 1 year after the coming of Cortés.
164 Thereafter epidemics occurred periodically during the colonial period, completely obliterating the
177 population of some districts, especially those in the low, hot lands. Smallpox, measles, and probably typhus (teré¢ekua) were the most common killers. Mendizábal (1939) has estimated that in the first century of Spanish occupation the Indians of New Spain were reduced to 25 percent of their pre-Conquest numbers, and that the pre-Spanish population of the diocese of Michoacán was possibly 200,000, which was reduced to some 92,000 by 1550.[19] Judging from the accounts in the Relaciones Geográficas of 1579–81, the basins of the Balsas and Tepalcatepec suffered the most heavily. There from one-third to all of the inhabitants of some villages were destroyed. Accounts of the 16th and 17th centuries mention scores of villages in the Tarascan area which are now nonexistent, the inhabi-

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[19] Mendizábal made this calculation from figures given in the Suma de Visitas, ca. 1540 (Paso y Troncoso, 1905, vol. 1).

161
177 tants having been wiped out entirely, or the few
[164] survivors having migrated later to larger towns.

Spanish exploitation and settlement in Michoacán slowly effected the reduction of Tarascan speech. Guzman's *entrada* (1530) left a trail of destruction and displacement of population throughout northern Michoacán. Moreover, dur-
[648] ing the exploitation of placer gold along the tributaries of the Balsas and Tepalcatepec (1524–35) Spanish miners destroyed and dislocated many Tarascans through enslavement and overwork.[20]

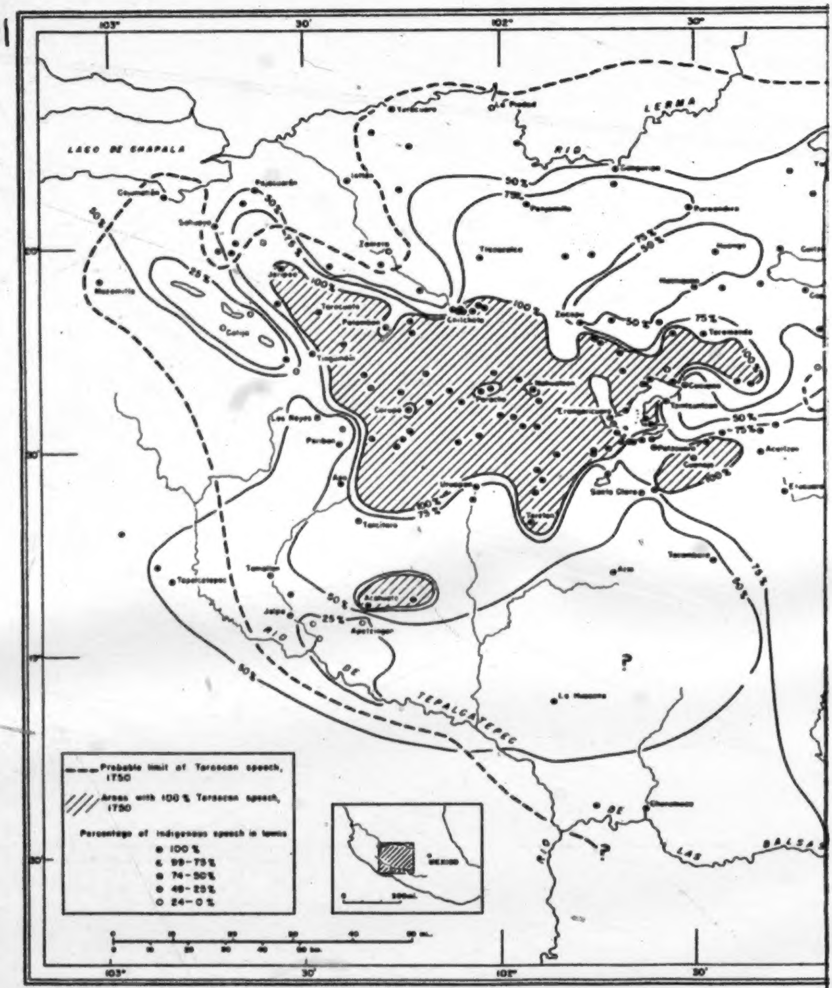
On the other hand, Franciscan and Augustinian
797 missionaries, who by the end of the 16th century
177 had established themselves in most of the large
191 Tarascan pueblos, were strong agents of acculturation, replacing many indigenous material and

---

[20] The Indice de Protocolos, vol. 1 (ed. Millares Carlo and Mantecón), gives abundant evidence of the feverish gold panning operations in the Balsas and Tepalcatepec drainage from 1524 to 1535 and cites the wholesale use of Indian slave labor. Such activity probably continued until the enforcement (in the 1540's) of the New Laws, which forbade slave labor and consequently decreased the profitableness of gold washing. Furthermore, many Spanish adventurers turned from gold panning to silver mining after the discoveries in the Taxco district during the 1530's.

[TEXT CONTINUES TOP OF P. 13-a]

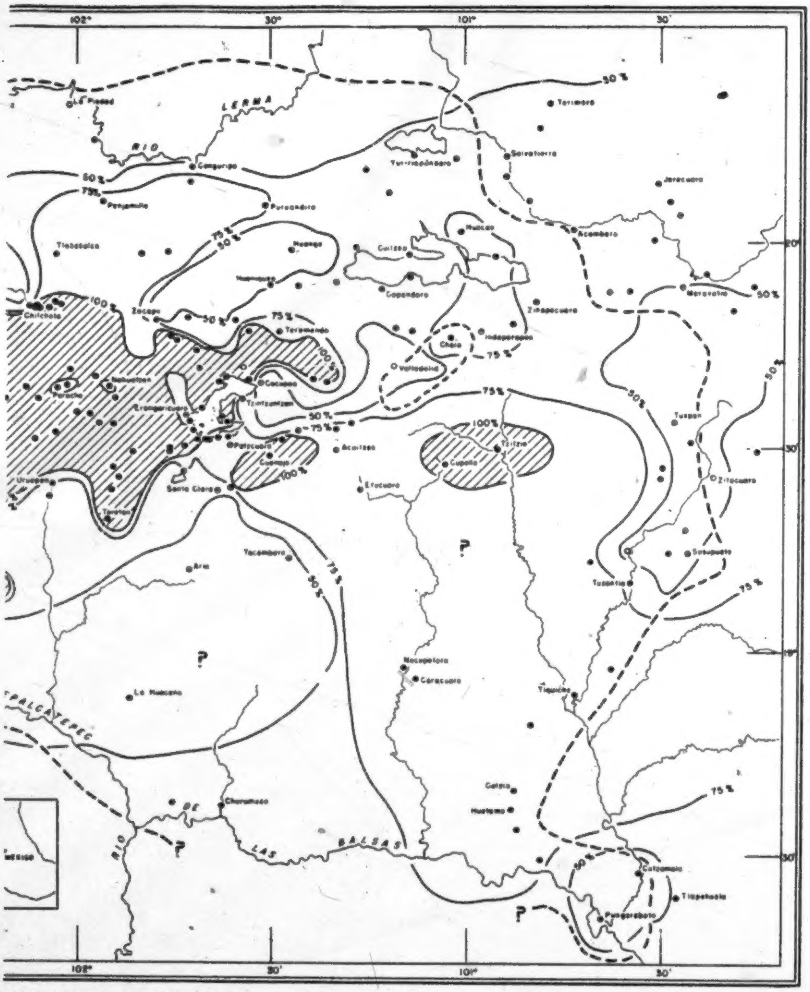
191


103°
30'
102°
30'
LAGO DE CHAPALA
RIO LERMA
Zamora
Los Reyes
Periban
Cotija
Apatzingan
Jalpa
Tepalcatepec
RIO DE TEPALCATEPEC
Santa Clara
Ario
Tacambaro
La Huacana
Churumuco
RIO DE LAS BALSAS
100 %
75 %
50 %
25 %
?
Probable limit of Tarascan speech, 1750
Areas with 100 % Tarascan speech, 1750
Percentage of indigenous speech in towns
● 100 %
● 99–75 %
● 74–50 %
● 49–25 %
○ 24–0 %
MEXICO
0 100 mi.
0 10 20 30 40 50 mi.
0 10 20 30 40 50 km.

**MAP 8.**—Area of Tarascan speech, ca. 1750. Isopleths indicate percentage of Tarascan-speaking folk to to

[Facing p. 12; section A]

191


102°
30'
101°
30'
20°
30'
19°
30'
La Piedad
RIO LERMA
Cangurigo
Penjamillo
Puruandiro
Tlazazalca
Huango
Huaniqueo
Chilchota
Zacapu
Teremendo
Nahuatzen
Paracho
Cocupao
Tzintzuntzan
Erongaricuaro
Patzcuaro
Cuanajo
Santa Clara
Uruapan
Taretan
Tacambaro
Ario
La Huacana
Churumuco
RIO TEPALCATEPEC
RIO DE LAS BALSAS
Yuririapúndaro
Tarimoro
Salvatierra
Jerecuaro
Acambaro
Huacao
Cuitzeo
Copandaro
Maravatio
Zinapecuaro
Indaparapeo
Charo
Valladolid
Acuitzeo
Etucuaro
Tzitzio
Cupollo
Tuxpan
Zitacuaro
Susupuato
Tuzantla
Nocupetaro
Caracuaro
Tiquicheo
Cutzio
Huetamo
Cutzamala
Tlapehuala
Pungarabato
México
50 %
75 %
100 %
?

opleths indicate percentage of Tarascan-speaking folk to total number of inhabitants at any given locality.

[Facing page 12; section B]

177 nonmaterial elements with European; but by per-
797 forming religious functions in Tarascan, they
191 helped to preserve, rather than destroy, the
native tongue. Nor did the absentee *encomen-*
[651] *dero*, who held villages in fee in order to collect
monthly or yearly tribute, disturb the native
speech.

177 The permanent European settlements (mines,
farming, and livestock enterprises) which de-
191 manded indigenous labor were the more important
464 agents in substituting Spanish for the native
167 language. *Repartimiento* labor from northern
566 Tarasca was sent to the large silver mines in the
east (Tlalpujahua, Sultepec, Temascaltepec, Zacualpan, Taxco) and in the north (Guanajuato); few pueblos in the Sierra furnished workers for these mines.[21] Such labor worked in the mines only for 1- or 2-week periods, and although the workers probably picked up some Spanish in contact with mulattoes and mestizos, they continued to use their native tongue. Free Tarascan laborers, however, migrated from their villages to distant northern mines (Zacatecas, Parral, San Luis Potosí) where they permanenty settled in native quarters and eventually lost the use of their aboriginal language.

Spanish settlements within the Tarascan area
191 contributed more than any other factor to the loss
177 of the native tongue. Such settlement occurred
during the 16th and 17th centuries in those lands peripheral to the Sierra, i. e., in the grassy plains and hill country to the north and east and in the *tierras templada* and *caliente* to the south. In both areas the basis of permanent Spanish settlement was stock raising. The northern section from the Otomí country near the Sierra de Ozumatlán to Mazamitla, south of Lake Chapala, was especially favorable for cattle and sheep. Large expanses of grass and scrub existed between widely scattered native villages; numerous springs and streams afforded sufficient water; while salt licks were common near mineral springs and in small *playas*. Moreover, year-round pasture occurred along the margins of lakes and marshes throughout the northern region. During the colonial period thousands of sheep and cattle were pastured in the dry season around Lake Cuitzeo, around the margins of the *ciénaga* of Zacapu, and in the

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[21] Aranza, Sevina, and Tzintzuntzan were the Sierra and Lake pueblos that supplied most of the *repartimiento* mine labor from the central part of the Tarascan area during the 16th century. During the 18th and 19th centuries most of the men of Zacán worked voluntarily in the Guanajuato mines. (Zavala and Castello, 1939–46, vol. 4, pp. 426–427; vol. 6, p. 468; AGN Historia, vol. 73, f. 256).

[P. 13-b]

177 Lerma delta plain at the eastern end of Lake
191 Chapala.[22]

In the north, land was granted and cattle *estancias* were established soon after the voluntary submission of the Tarascan chiefs in 1522. By 1540 most of the best pastures between Lake Cuitzeo and Lake Chapala were in the hands of Spanish ranchers (Paso y Troncoso, 1905, vol. 1, pp. 76, 77, 117, etc.), and by 1600 most of northern Tarasca was taken up by cattle and sheep ranches, forming the southern part of the great colonial ranching area of north-central Mexico. In well-watered spots Spaniards also established
[464] irrigated wheat farms, worked by *repartimiento* labor from Tarascan villages nearby, e. g. around Chilchota and Indaparapeo (Mus. Nac., leg. 102, Rel. de Chilchota, 1581; Paso y Troncoso, 1905, vol. 1, pp. 78, 133).

These Spanish settlements, located between
[166] Indian pueblos, were centers of acculturation for natives who came to work permanently as herdsmen or farmers. Associating with mulatto and Negro cattle hands (who became numerous in Michoacán during the 17th and 18th centuries), Indians gradually lost their Tarascan speech and intermarried with the invading element, begetting mixed offspring. Spanish and mulatto families also established households in many reorganized Indian pueblos (e. g. Cuitzeo, Indaparapeo, Chilchota, etc.), the Indian population being relegated to *barrios*, or native quarters in the town. There, too, acculturation took place. Furthermore, at least two Spanish towns were founded in the northern area—Valladolid (Morelia) and Zamora—in both of which were estab-
[166] lished *barrios* for Indians who came to live as laborers and traders.

In spite of active Spanish and mulatto settlement in the North, the loss of native speech was slow. By the mid-18th century Tarascan-speaking folk comprised between 50 and 75 percent of the total population in the northern plateau of Michoacán, and many pueblos were still entirely native in speech[23] (map 8). These percentages

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[22] The pastures of the lower Lerma were famed throughout New Spain for their abundant winter forage. During the 16th and 17th centuries thousands of sheep were annually driven there from Querétaro, Toluca, the Valley of Mexico, and other distant places. (Mus. Nac. (Col. Gómez Orozco), Rel. de Querétaro; Ponce Relación, 1872, vol. 2, p. 14; Arregui, 1946, p. 60.)

[23] The language maps (8 and 9) were compiled chiefly from church *padrones*,
[127] or lists of confessors of each inhabited place in the diocese of Michoacán, Such lists are extant in the Archivo del Arzobispado de Michoacán (AAM), Morelia. *Padrones* for 1742, 1746, and 1759, plus population and linguistic information from Villaseñor y Sánchez: Theatro Americano, 1746-48, were employed to construct the map for 1750. For that of 1800 the writer used *padrones* for 1798, 1800, 1801, 1805, 1808, and 1810. Information for the latter map was much less complete than for the former.

191 were probably even larger prior to 1737, the year
of a disastrous smallpox epidemic. Certain areas,
177 however, particularly the pastures of the evergreen marshes (the lower Lerma, the Zacapu district, the Zamora Valley), were mainly Spanish in speech. By 1600 the northern boundary of Tarascan had moved north into the Bajío of Guanajuato, where Spanish wheat farms and
[166] stock ranches had attracted large numbers of native workers from the southern pueblos (Zavala and Castello, 1939-46, vol. 5, p. 30). In the north-
[563] western sector a reemergent Mexican (Teco) speech had replaced Tarascan (AGN Historia, vol. 73, ff. 192–210; 212–226), while in the northeast and east Mazahua and Matlaltzinca were encroaching farther into Tarascan territory. The islands of Matlaltzinca east and southwest of Valladolid still held, but that of Huetamo had probably disappeared (AGN Historia, vol. 73, f. 139).

By 1800 (map 9) the percentage of Tarascan-
191 speaking folk in the northern area had decreased
177 notably, especially along the frontiers. The Matlaltzinca-Tarascan area of Charo-Zinapécuaro
[563] was still largely indigenous, and a zone from Cerro el Zirate northward to Lake Cuitzeo contained a large proportion of native speech. Fifty years later (map 10)[24] the Tarascan-speaking people had been reduced to small isolated islands, partly a result of frequent military and political upheavals following the struggle for independence. In 1940 (map 11), after nearly 100 years of intermittent political turmoil, Tarascan speech had disappeared from the northern grasslands, except for a few resistant pueblos on the northern edge of the Sierra. After a slow weakening in the colonial period, the native language in the North gradually collapsed during the last 150 years.

563 **The western area.**—Immediately west of the
191 Sierra lies a southward prong of the northern plateau landscape, which, like the North, was
177 early settled by whites and mulattoes. At the beginning of the 17th century the large graben valley of Cotija was occupied by cattle estancias, and the settlement of Cotija was composed entirely of Spanish blood. As late as 1800 this valley, except its eastern end, was an island of Spaniards and some mulattoes and mestizos sur-

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[127] [24] Population statistics were not available to construct an isopleth map for 1850. Approximate boundaries of Tarascan speech were compiled from various mid-19th century reports: "Noticia general de los terrenos de comunidad de indígenas del Estado", in Memoria de la Legislatura de Michoacán (1869); AAM, siglo XIX, leg. 707, Memorias estadísticas . . . 1841, Listas de los cabeceras de curato . . . 1845; Orozco y Berra, 1864, pp. 271–273; Romero, 1862.

563 177 191 rounded by Tarascans. A few Spanish ranchers and traders settled also in Tingüindín, a large Indian village at the western edge of the Sierra; but the extreme western Tarascan zone from Mazamitla to Los Reyes did not completely lose its native speech until the beginning of the present century.

**The tierra caliente and tierra templada.**—The story of the recession of Tarascan speech in the *tierra caliente* roughly parallels that in the northern plateau. [164] In the former area disease probably decimated the native population more completely than in the north, and its Europeanization was consequently more rapid. After the period of gold panning in the southern tributaries of the Tepalcatepec and Balsas Rivers, the Spaniards turned to cattle ranching in the tropical bush around Cutzamala, Pungarabato, and Huetamo in the Balsas Basin and near Apatzingán and Tomatlán in the Tepalcatepec lowland. Although the tropical grasses and shrubs were less nourishing than those in the northern plateau, the *tierra caliente* was favored by abundant springs and streams. As in the north, the natives rapidly became *vaqueros* and mixed with the mulattoes and Negroes on the ranches. Moreover, during the last decades of the 16th century Spaniards began to establish sugar plantations and mills in the upper limits of the *tierra caliente*.[25] The mill settlements (*trapiches*, *ingenios*), like the cattle ranches, were centers of acculturation and miscegenation. Large groups of Negro and mulatto slaves, male and female, were imported to operate the *trapiches* (according to colonial law, Indians were exempt from mill labor), while Tarascan [464] forced and free workers planted and harvested cane in fields nearby. Race mixing and gradual loss of native speech was inevitable. Again, exploitation of the copper mines of the *tierra caliente* 191 [177] and the establishment of smelting centers in Tzatzio and Santa Clara was another activity which helped acculturation and hastened the loss of the aboriginal language. In 1750 the limits of Tarascan speech still coincided with the 16th century pre-Spanish boundaries, but in some areas, such as the Tepalcatepec Basin, the percentage of inhabitants speaking Tarascan was only 25 percent of the total. In the *tierra templada* sugar-growing districts south of Zitácuaro, in the Peribán Valley, and the upper escarpment zone around Ario and Tacámbaro, the ratio of

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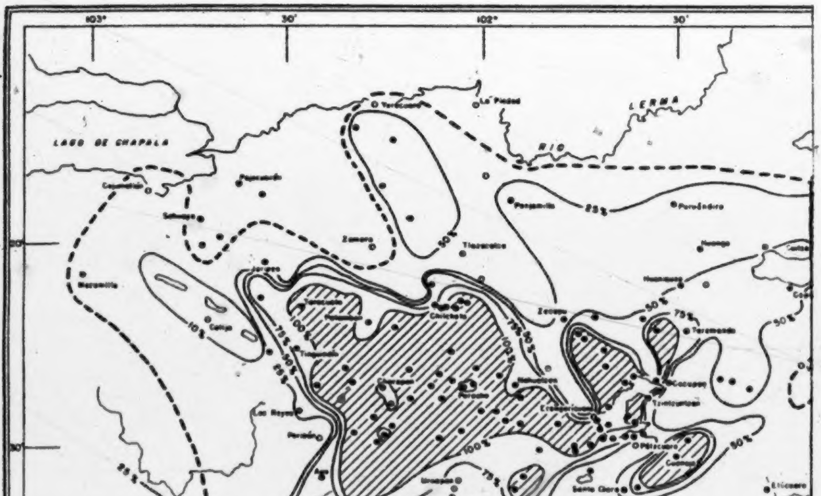
[25] In 1540 a sugar mill had been established in Taximaroa, on the plateau above Turpan (Paso y Troncoso, 1905, vol. 1, p. 252).

[Text continues top of P. 17a---Analyst]

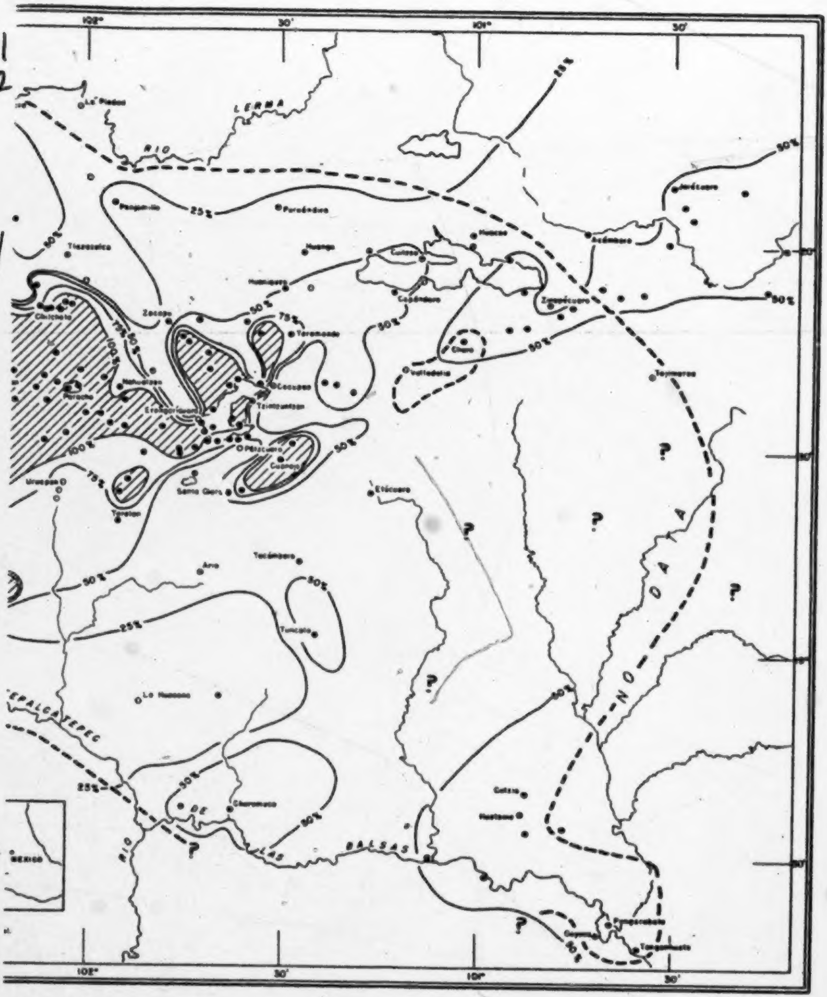
191
162


103°
30'
102°
30'
LAGO DE CHAPALA
RIO LERMA
RIO DE TEPALCATEPEC
RIO DE LAS BALSAS
Zamora
Pátzcuaro
Uruapan
La Piedad
Probable limit of Tarascan speech, 1800
Areas with 100% Tarascan speech, 1800
Percentage of indigenous speech in towns
● 100%
● 99–75%
● 74–50%
● 49–25%
○ 24–0%
MEXICO
0
10
20
30
40
50 mi.
0
10
20
30
40
50 km.
100%
75%
50%
25%
10%

MAP 9.—Area of Tarascan speech, ca. 1800. Isopleths indicate percentage of Tarascan-speaking folk to tot

[Facing page 14; section A]

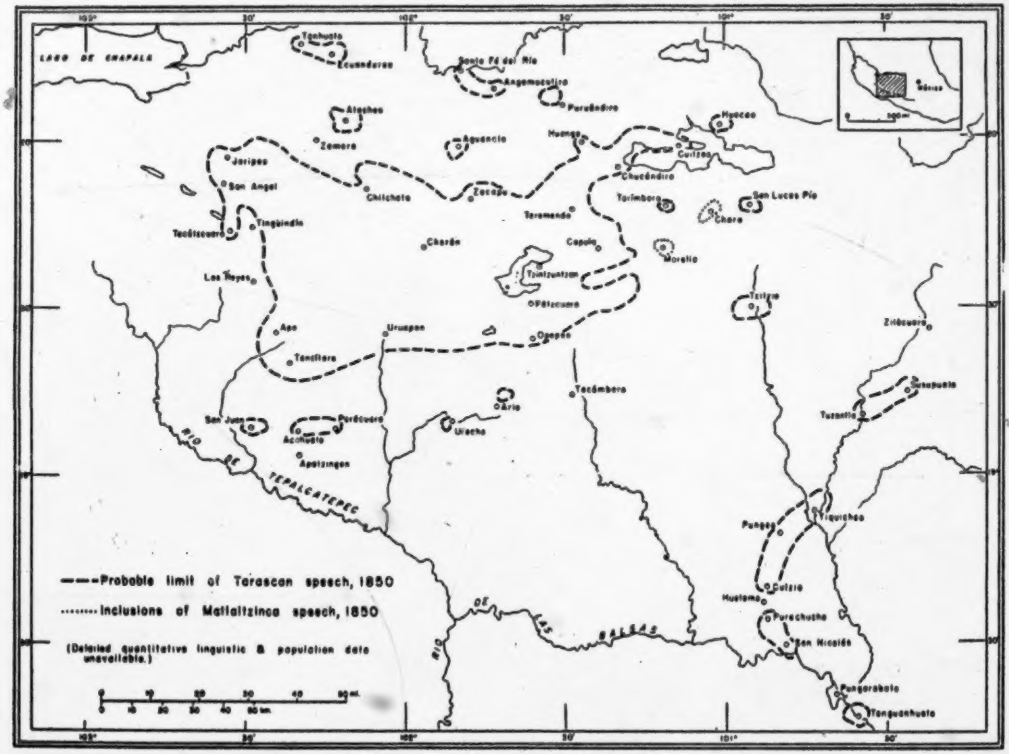
191
162


102°
30'
101°
30'
RIO LERMA
25%
50%
75%
100%
Zacapu
Chilchota
Paracho
Nahuatzen
Erongarícuaro
Pátzcuaro
Cocupao
Tzintzuntzan
Teremendo
Uruapan
Santa Clara
Tacámbaro
Ario
Cuitzeo
Zinapécuaro
Morelia
Huetamo
Coyuca
?
RIO DE LAS BALSAS
TEPALCATEPEC
MEXICO

sopleths indicate percentage of Tarascan-speaking folk to total number of inhabitants at any given locality

[illegible] O - 48 (Face p. 14)

[Facing page 14; section B]

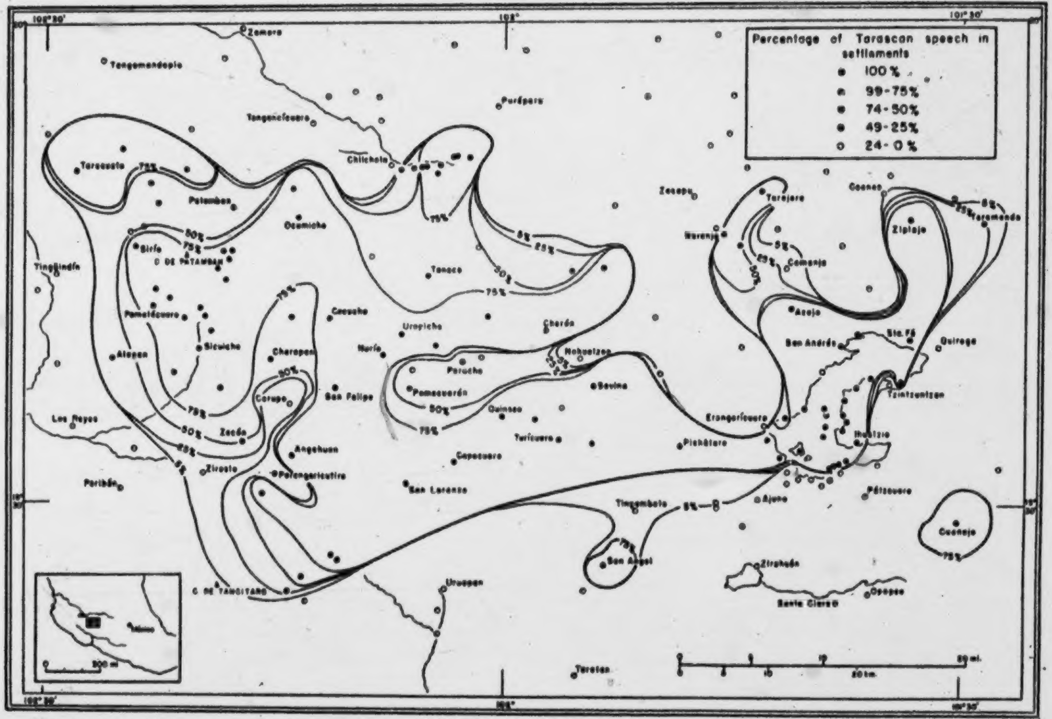

LAGO DE CHAPALA
Ecuandureo
Santa Fé del Río
Angamacutiro
Puruándiro
Atacheo
Zamora
Huango
Cuitzeo
Chucándiro
Jaripo
San Angel
Chilchota
Zacapu
Teremendo
Tarímbaro
Charo
San Lucas Pío
Tingüindín
Tacátzcuaro
Cherán
Capula
Morelia
Los Reyes
Tzintzuntzan
Pátzcuaro
Tzitzio
Zitácuaro
Apo
Uruapan
Opopeo
Tancítaro
Tacámbaro
Ario
Tuzantla
San Juan
Parácuaro
Acahuato
Urecho
Apatzingan
RIO DE TEPALCATEPEC
Tiquicheo
Cutzio
Huetamo
Purechucho
San Nicolás
Pungarabato
Tanganhuato
RIO DE LAS BALSAS
México
103°
30'
102°
101°
20°
19°
Probable limit of Tarascan speech, 1850
Inclusions of Matlaltzinca speech, 1850
(Detailed quantitative linguistic & population data unavailable.)
0 10 20 30 40 50 mi.
0 10 20 30 40 50 km.

MAP 10.—Area of Tarascan speech, ca. 1850.

191
162

4: West K-5 (1946) 1948 [P. 16]

NU34 Tarasco NU34



Percentage of Tarascan speech in settlements
● 100%
● 99-75%
● 74-50%
● 49-25%
○ 24-0%
102°30'
102°
101°30'
20°
19°30'
Zamora
Tangamandapio
Tangancícuaro
Purépero
Chilchota
Tarecuato
Patamban
Ocumicho
Sirio
C. DE PATAMBAN
Tingüindín
Pamatácuaro
Sicuicho
Atapan
Charapan
Cocucho
Urapicho
Nurío
Paracho
Pomacuarán
San Felipe
Corupo
Los Reyes
Zacán
Angahuan
Zirosto
Peribán
Parangaricutiro
San Lorenzo
Capacuaro
Tanaco
Cherán
Nahuatzen
Sevina
Quinceo
Turícuaro
Zacapu
Naranja
Tarejero
Comanja
Azajo
Coenéo
Zipiajo
Teremendo
San Andrés
Sta. Fé
Quiroga
Tzintzuntzan
Erongarícuaro
Pichátaro
Ihuatzio
Pátzcuaro
Tingambato
Ajuno
San Angel
Cuanajo
Zirahuén
Santa Clara
Opopeo
Uruapan
Taretan
C. DE TANCITARO
75%
50%
25%
5%
0 5 10 20 mi.
0 5 10 20 km.
0 500 mi
México

MAP 11.—Area of Tarascan speech, 1940. Isopleths represent percentage of Tarascan-speaking folk to total number of inhabitants in the area.

[P. 17-2]

191 Tarascan to Spanish was also low. Only one isolated area of solid native speech existed northeast of Apatzingán (the fruit-growing villages of Acahuato and Parácuaro). The 18th-century population figures for the sparsely inhabited, highly dissected hot country south of Morelia are not extant, but it was probably entirely Tarascan in language. In 50 years percentages of native speech had decreased, but the outer limits of the language remained practically unchanged. In 1850, however, only scattered islands of indigenous speech remained: along the Balsas at the southeastern extremity of the old Tarascan area (Tanganhuato, Pungarabato); a disjunct arc extending from the Balsas northeast to near Zitácuaro (San Nicolás, Purechucho, Cutzeo, Pungeo, Tiquicheo, Tuzantla, and Susupuato); the Acahuato-Parácuaro district; and the pueblo of San Juan de los Plátanos, west of Apatzingán (map 10). By 1940 Tarascan speech in the *tierra caliente* had entirely disappeared; only the small fruit town, San Angel Zurumucapio, represented the last remnant of Tarascan speech in the *tierra templada*. Again, as in the northern plateau, the sudden collapse of native speech in the south came in the first half of the 19th century. There, the Tarascans have lost most heavily territorially, for the hot country, although a colonial area and probably lightly held in terms of population, comprised more than half of the old empire.

The present distribution of Tarascan speech is confined mainly to the *tierra fría*—Lake Pátzcuaro and the Sierra. These regions, together with La Cañada, appear to be a resistant core in which the Tarascans are making a last stand against complete loss of their native tongue. In the maps of 1750, 1800, and 1850 these regions stand out as the only large purely indigenous part of Tarasca.
191 The failure of Spaniards and their mulatto
191 laborers to settle in the Sierra and in some sections
177 of the Lake district cannot be attributed to inaccessibility, for those areas are open country with few impediments to horse travel.[illegible] The Sierra was simply unattractive to Spanish exploitation. Neither it nor the Lake area contained mineral wealth. The pine-oak forests, with little palatable grass and numerous predatory animals, offered few attractions for the stockman.

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[487] [illegible] The *camino real* from México to Nueva Galicia, via Pátzcuaro, traversed the center of the Sierra, passing through Pichátaro, Sevina, Nahuátzen, Cherán, and Chilchota.

191 177 Nor was the region's winter climate an inducement.[27] The religious had penetrated all Indian settlements in the Sierra and Lake areas; every pueblo was under an absentee *encomendero* to whom tributes in money, grain, or handicrafts were paid periodically. But the Indians had little contact with the Spanish tongue. By 1750, however, some Spanish families, probably traders, had settled in a few Sierra market towns (Patamban, Paracho, Nahuatzen, Corupo), and in 1800 the towns of Charapan and Parangaricutiro also contained one or two Spanish families.[28] A large part of the inhabitants of those pueblos today speak only Castilian (map 12). After independence in 1822, a few Spaniards or mestizos established agricultural settlements on the Sierra, e. g. the *rancho* of Arato, now a pueblo 10 km. west of Paracho.

361 191 177 Although the Tarascan area first to harbor Spaniards was the Lake region (Pátzcuaro, Tzintzuntzan), some of its pueblos have succeeded in preserving the native tongue. Such towns are located on the islands and in isolated positions on the shore (northwestern edge of the lake, and the Taríu-k'éri Peninsula). By 1750 numerous Spanish haciendas and mestizo *ranchos* existed along the southern, southwestern, and northeastern borders of the lake. Cocupao (modern Quiroga), Tzintzuntzan, and Erongarícuaro at that time were approximately 50 percent Spanish-speaking, and the city of Pátzcuaro, the colonial administrative and economic center of the Lake area, was less than 25 percent Tarascan in speech. Today the language of the former colonial hacienda districts around the lake is completely nonindigenous. These include the entire southern shore, the northeastern section, and many points along the western border.

191 177 The history of the southern shore represents a typical example of the influence of haciendas on the hispanicization of native populations. By the mid-18th century large Spanish holdings had enveloped most of the native pueblos, contrary to laws which insured Indians a block of land (for

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[27] The Sierra's unattractiveness to Spanish settlement is aptly described by the Franciscan friar, Diego Muñóz, writing in 1603 on the cultivated land near Capacuaro: ". . . y no son tierras para mas que yndios criados alli que las tienen cursados y experimentados; que españoles las aprecian poco por ser temple friguroso el mas frio de mechoacan acrecentandolo el ayre caso ordinario desabrido recio y delgado y la tierra es aspera, y inutil para ganado." (AGN Congregaciones, f. 14).

[28] AAM, siglo XVIII, leg. 225 (1746); leg. 277 (1750). In 1798, 19 *gente de razón* lived in Charapan, 6 in Parangaricutiro, 40 in Corupo (AAM siglo XIX, leg. 175).

191 177 buildings) measuring 600 yards (*varas*) in each cardinal direction from the village church. Deprived of land, most of the men of the pueblos sought work in the sugar plantations in the *tierra templada* around Ario and Tacámbaro, returning only occasionally to their homes. Others became peons in the adjacent haciendas, working with mulatto and mestizo labor (AGN Historia, vol. 73, ff. 292–306). Consequently, the decreased use and subsequent loss of the native language was inevitable. Only the fishers inhabiting the small Urandén Islands immediately offshore, who were unaffected by the haciendas, were able to preserve their native tongue.

## MODERN LINGUISTIC DISTRIBUTIONS

191 The modern Tarascan area is in no sense a solid block of indigenous speech (table 1). The inhabitants of only 32 of the 66 Tarascan towns and 31 of the 50 indigenous *ranchos* all speak the native tongue (map 12). Nearly 25 percent of the population within the present area is composed of mestizos who know only Spanish. Such people are mainly merchants and *arrieros* living in most of the Indian pueblos and farmers inhabiting nonindigenous *ranchos* scattered throughout the Sierra and the Lake district. Fifty years ago native market centers, the towns of Nahuatzen and Tingambato now contain but a handful of people who have retained the indigenous language. [1162] According to 1940 census figures, only 35 percent of the inhabitants of Patamban are Tarascan in speech, 38 percent of those of Parangaricutiro, 30 percent of those of Paracho, 20 percent of those of Sirosto, and 10 percent of those of Corupo.[illegible] Moreover, in 1940, 18 mestizo *ranchos* were scattered between Tarascan pueblos in the Sierra. In addition to mestizo merchants and farmers, many Spanish-speaking lumbermen inhabit the ephemeral sawmills prevalent in the Sierra forests. Hence, infiltrating mestizo settlement has shattered the once-continuous indigenous area in the Sierra and Lake district into small islets of purely Tarascan speech. The more notable of these 191 361 islets are: (1) seven towns in La Cañada, (2) the pueblos and *ranchos* grouped around the flanks of Cerro de Patamban, (3) the Tarecuato district, (4) a string of villages east of Cerro de

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[illegible] The percentage for Corupo is open to question. Although no actual statistical sampling was done, an impression of a much greater percentage of Tarascan-speaking inhabitants was obtained by the writer when he visited that town in 1946.

[P. 18-b]

191 361 Quiroga, and (5) the islands and adjacent shore settlements of Lake Pátzcuaro (map 11). (See table 1.)

TABLE 1.—*Distribution of Tarascan-speaking folk by localities, 1940*[1]

[Data from official census, 1940]

THE SIERRA

191 162 361

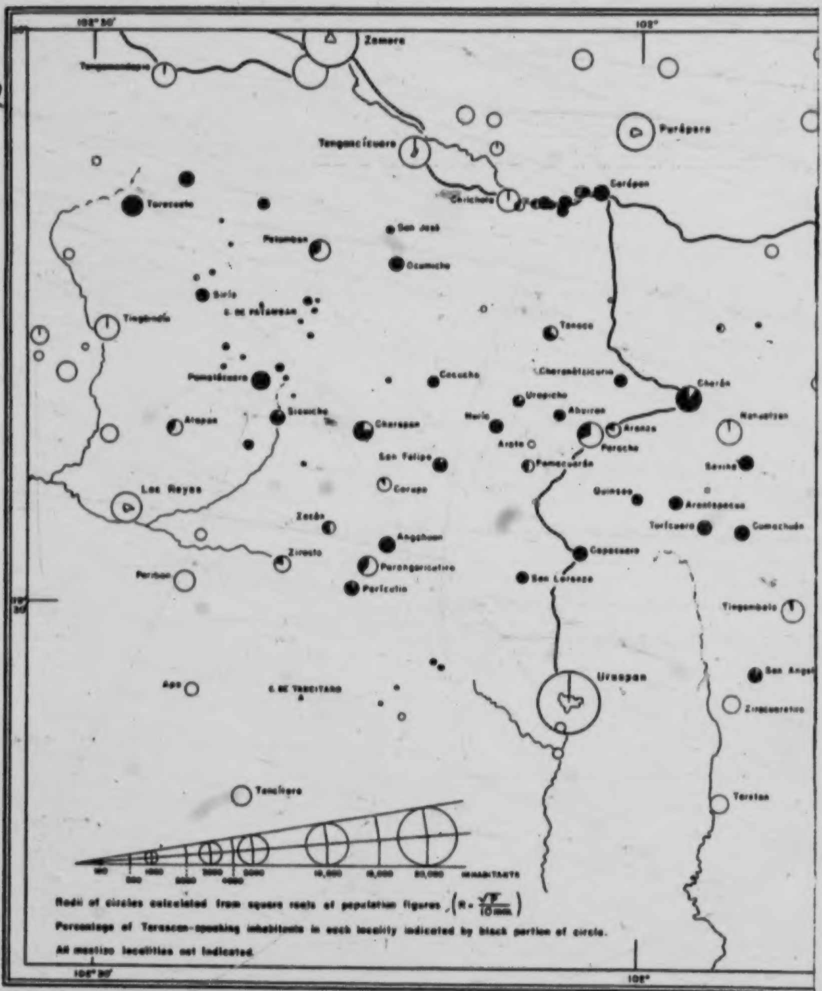
| Locality[1a] | Total population (number) | Tarascan-speaking folk | |
|---|---|---|---|
| | | Number | Percent |
| Municipio of Charapan: | | | |
| Charapan (p) | 1,715 | 1,311 | 76.4 |
| San Felipe (p) | 887 | 795 | 89.5 |
| Huancho (r) | 20 | 20 | 100.0 |
| Rancho Nuevo (r) | 30 | 19 | 63.0 |
| La Palma (r) | 161 | 0 | .0 |
| Municipio of Cherán: | | | |
| Cherán (p) | 2,293 | 2,009 | 87.6 |
| Casimo (r) | 195 | 81 | 41.6 |
| Tsipiatiro (r) | 24 | 20 | 83.7 |
| Municipio of Chilchota: | | | |
| Huécato (r) | 127 | 0 | 0 |
| Los Nogales (r) | 306 | 0 | 0 |
| Rancho Seco (r) | 60 | 0 | 0 |
| El Pedregal (r) | 116 | 0 | 0 |
| Municipio of Erongarícuaro: | | | |
| Casas (r) | 25 | 0 | 0 |
| Porumbo (h) | 49 | 0 | 0 |
| La Zarzamora (r) | 93 | 0 | 0 |
| Zinciro (r) | 412 | 0 | 0 |
| Municipio of Los Reyes: | | | |
| Atapan (p) | 1,001 | 257 | 25.6 |
| Jesús Díaz (Sirio) (p) | 696 | 696 | 100.0 |
| Pamatácuaro (p) | 1,383 | 1,372 | 99.2 |
| Sicuicho (p) | 810 | 700 | 86.5 |
| Zacán (p) | 876 | 439 | 50.1 |
| Cherato (r) | 271 | 261 | 96.3 |
| La Providencia (r) | 95 | 95 | 100.0 |
| San Benito (r) | 255 | 255 | 100.0 |
| San Luis Sorena (r) | 64 | 64 | 100.0 |
| La Tinaja (r) | 154 | 154 | 100.0 |
| El Tropezón (r) | 84 | 84 | 100.0 |
| Uringuitiro (Juzgitiro) (r) | 267 | 267 | 100.0 |
| Zarzamora (r) | 130 | 130 | 100.0 |
| Querendaro (r) | 90 | 90 | 100.0 |
| La Mesa (r)[3] | [3] 120 | 120 | 100.0 |
| San Marcos Arachúcuaro (r)[3] | [3] 50 | 50 | 100.0 |
| La Jolla (r)[3] | (?) | (?) | (?) |
| Tapan (r)[3] | [3] 50 | 50 | 100.0 |
| Tierras Blancas (r)[3] | [3] 85 | 85 | 100.0 |
| Venado (r)[3] | (?) | (?) | (?) |
| Municipio of Nahuatzen: | | | |
| Nahuatzen (p) | 3,046 | 25 | .7 |
| Arantepacua (p) | 620 | 620 | 100.0 |
| Comachuén (p) | 1,055 | 1,036 | 98.2 |
| Sevina (p) | 881 | 876 | 99.4 |
| Turícuaro (p) | 749 | 749 | 100.0 |
| La Mojonera (p) | 831 | 0 | 0 |
| El Padre (r) | 94 | 0 | 0 |
| El Pino (r) | 133 | 0 | 0 |
| San Isidro (r) | 845 | 1 | .1 |

[1] This table does not necessarily include statistics for all settlements within a given municipio. The boundaries of many municipios listed, such as Los Reyes and Pátzcuaro, extend beyond the present limits of Tarascan speech; in such cases many purely mestizo towns and ranches have been omitted. However, all settlements containing Tarascan-speaking inhabitants are listed.

[1a] In this column (c)=ciudad; (v)=villa; (p)=pueblo; (r)=rancho; (rr)=railroad station; (h)=hacienda.

[TEXT CONTINUES TOP OF P. 19-a --- ANALYST]

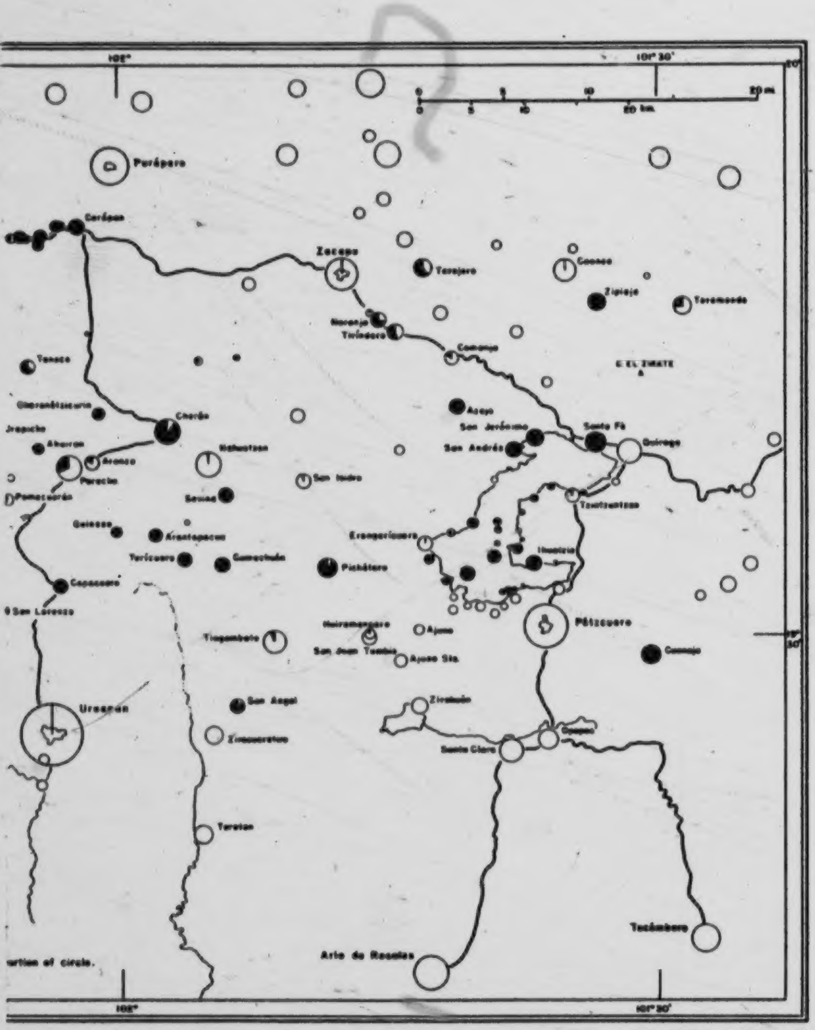
191
361
162


102° 30'
102°
Zamora
Tangamandapio
Tangancícuaro
Purépero
Carapan
Chilchota
Tarecuato
Patamban
San José
Ocumicho
Sirio
C. de Patamban
Tinguindín
Pomacuaro
Cocucho
Sicuicho
Charapan
Atapan
Nurio
Arato
San Felipe
Corupo
Los Reyes
Zacán
Angahuan
Zirosto
Parangaricutiro
Peribán
Paricutin
Tanaco
Cheranástico
Urapicho
Ahuiran
Cherán
Nahuatzen
Aranza
Paracho
Pomacuarán
Sevina
Quinceo
Arantepacua
Turícuato
Comachuén
Capacuaro
San Lorenzo
Tingambato
19° 30'
Apo
C. de Tancítaro
Uruapan
San Angel
Ziracuaretiro
Tancítaro
Taretan
500
1000
2000
3000
4000
5000
10,000
15,000
20,000
INHABITANTS
Radii of circles calculated from square roots of population figures. (R = √P / 10 mm.)
Percentage of Tarascan-speaking inhabitants in each locality indicated by black portion of circle.
All mestizo localities not indicated.
102° 30'
102°

**Map 12.**—Distribution of Tarascan speech by settlements, 1940. Based on official 1940 census da

[Facing page 18; section A.]

191
361
162


102°
101° 30'
20°
19° 30'
0 5 10 20 mi.
0 5 10 20 km.
Purépero
Carápan
Zacapu
Tarejero
Coeneo
Zipiajo
Teremendo
Naranja
Tiríndaro
Comanja
Tanaco
C. EL ZIRATE
Cheranátzicurin
Urapicho
Ahuiran
Cherán
Aranza
Paracho
Pomacuarán
Nahuatzen
San Isidro
Sevina
Quinceo
Arantepacua
Turícuaro
Comachuén
Pichátaro
Capacuaro
San Lorenzo
Azajo
San Jerónimo
San Andrés
Santa Fé
Quiroga
Tzintzuntzan
Erongarícuaro
Ihuatzio
Huiramangaro
San Juan Tumbio
Ajuno
Ajuno Sta.
Tingambato
Pátzcuaro
Cuanajo
San Angel
Uruapan
Ziracuaretiro
Zirahuén
Opopeo
Santa Clara
Taretan
Tacámbaro
Ario de Rosales
rtion of circle.

nts, 1940. Based on official 1940 census data. A few small Tarascan ranchos are not indicated.

746888 O - 48 (Face p. 18)

[Facing page 18; section B]

[P. 19-a]

191
361
162

TABLE 1.—*Distribution of Tarascan-speaking folk by localities, 1940*—Continued

THE SIERRA—Continued

| Locality | Total population (number) | Tarascan-speaking folk | |
|---|---|---|---|
| | | Number | Percent |
| Municipio of Paracho: | | | |
| Paracho (v) | 3,304 | 1,005 | 30.4 |
| Ahuiran (p) | 593 | 593 | 100.0 |
| Aranza (p) | 792 | 136 | 17.1 |
| Arato (p) | 233 | 0 | 0 |
| Cocucho (p) | 584 | 584 | 100.0 |
| Cheranástzicurin (p) | 751 | 751 | 100.0 |
| Nurio (p) | 810 | 784 | 96.7 |
| Pomacuaran (p) | 626 | 286 | 45.8 |
| Quinceo (p) | 482 | 482 | 100.0 |
| Tanaco (p) | 948 | 629 | 66.3 |
| Urapicho (p) | 541 | 422 | 78.0 |
| Pacápitiro (r) | 107 | 23 | 21.5 |
| El Tejocote (r) | 81 | 74 | 91.3 |
| Municipio of Parangaricutiro: | | | |
| Parangaricutiro (p) | 1,895 | 725 | 38.2 |
| Angahuan (p) | 1,098 | 1,098 | 100.0 |
| Corupo (p) | 813 | 85 | 10.4 |
| Paricutín (p) | 733 | 620 | 84.6 |
| Zirosto (p) | 1,314 | 269 | 20.5 |
| La Alberca (r) | 91 | [4](?) | (?) |
| La Atascada (r) | 74 | [4](?) | (?) |
| Barranca Seca (r) | 89 | 4 | 4.5 |
| Canoa Alta (r) | 21 | 0 | 0 |
| Las Canoas (r) | 113 | 0 | 0 |
| La Cantera (r) | 59 | 40 | 67.8 |
| Las Cocinas (r) | [5] 0 | 0 | 0 |
| Los Desmontes (r) | 23 | 0 | 0 |
| El Estudiante (r) | 26 | 8 | 30.7 |
| Huanondio (r) | 80 | 0 | 0 |
| Los Lobos (r) | 29 | 0 | 0 |
| Sipicha (r) | 20 | 0 | 0 |
| El Tejamanil (r) | 84 | 0 | 0 |
| El Tepamal (r) | 51 | 44 | 90.0 |
| El Tepetate (r) [2] | [3] 50 | 22 | 45.0 |
| Municipio of Pátzcuaro: | | | |
| Cuanajo (p) | 1,735 | 1,682 | 97.0 |
| Huiramangaro (p) | 540 | 17 | 3.1 |
| San Juan Tumbio (p) | 887 | 0 | 0 |
| Ajuno (p) | 540 | 0 | 0 |
| Ajuno Sta. (rr) | 719 | 0 | 0 |
| Municipio of Tancítaro: | | | |
| Tancítaro (v) | 1,838 | 6 | .3 |
| Apo (p) | 876 | 0 | 0 |
| Municipio of Tangamandapio: | | | |
| Tangamandapio (p) | 2,573 | 12 | .5 |
| Tarecuato (p) | 2,146 | 2,146 | 100.0 |
| La Cantera (r) | 962 | 962 | 100.0 |
| Las Encinillas (r) | 78 | 78 | 100.0 |
| Los Laureles (r) | 8 | 8 | 100.0 |
| Ucuarés (r) | 308 | 0 | 0 |
| Municipio of Tangancícuaro: | | | |
| Ocumicho (p) | 1,040 | 1,018 | 97.8 |
| Patamban (p) | 2,333 | 809 | 34.6 |
| San José de Gracia (p) | 170 | 167 | 98.4 |
| Agua Escondida (r) | 22 | 22 | 100.0 |
| Aranza (r) | 54 | 21 | 39.0 |
| Carácuaro (r) | 37 | 2 | 5.4 |

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[2] Locality not listed in 1940 census. Names obtained from local inhabitants.

[3] Estimated population.

[4] Entirely mestizo according to census, but 100 percent Tarascan according to officials in San Juan Nuevo (Los Conejos) in 1946.

[5] Uninhabited in 1940, but estimated population in 1946 around 25, all Tarascan.

[P. 19b]

191
162
361

**Table 1.**—*Distribution of Tarascan-speaking folk by localities, 1940*—Continued

THE SIERRA—Continued

| Locality | Total population (number) | Tarascan-speaking folk | |
|---|---|---|---|
| | | Number | Percent |
| Municipio of Tangancícuaro—Continued | | | |
| Las Cañas (r) | 51 | 20 | 39.2 |
| Guarachanillo (r) | 22 | 9 | 40.9 |
| Rancho Nuevo (r) | 38 | 3 | 8.0 |
| Las Trojes (r) | 14 | 0 | 0 |
| El Tanguacho (r) | 471 | 450 | 95.5 |
| Municipio of Tingambato: | | | |
| Pichátaro (p) | 1,877 | 1,740 | 92.7 |
| Municipio of Tingüindín: | | | |
| Tingüindín (v) | 2,897 | 15 | .5 |
| Tacátzcuaro (p) | 1,495 | 7 | .4 |
| Las Trojes (r) | 45 | 0 | 0 |
| Municipio of Uruapan: | | | |
| San Lorenzo (p) | 575 | 575 | 100.0 |
| Capacuaro (p) | 785 | 778 | 99.1 |
| Cheranguerán (r) | 138 | 0 | 0 |
| Los Conejos (San Juan Nuevo) (p) [6] | (?) | (?) | (?) |

THE LAKE AREA

| Locality | Total population (number) | Number | Percent |
|---|---|---|---|
| Municipio of Erongarícuaro: | | | |
| Erongarícuaro (p) | 1,209 | 14 | 1.1 |
| Arócutin (p) | 211 | 211 | 100.0 |
| Jarácuaro (p) | 875 | 875 | 100.0 |
| Napízaro (p) | 239 | 214 | [7] 89.5 |
| Puácuaro (p) | 498 | 498 | 100.0 |
| Uricho (p) | 461 | 461 | 100.0 |
| Nocutzepo (p) | 409 | 0 | 0 |
| Tócuaro (p) | 188 | 0 | 0 |
| Lázaro Cárdenas (r) | 214 | 0 | 0 |
| Opongulo (r) | 178 | 15 | 8.5 |
| Revolución (r) | 10 | 10 | 100.0 |
| Municipio of Pátzcuaro: | | | |
| Pátzcuaro (c) | 9,557 | [8] (?) | (?) |
| Janitzio (p) | 771 | 748 | 97.0 |
| Ibarra (Pátzcuaro Sta.) | 809 | 12 | 1.5 |
| Huecorio (p) | 499 | 0 | 0 |
| Tzentzenguaro (p) | 208 | 0 | 0 |
| Lázaro Cárdenas (p) | 412 | 0 | 0 |
| Primo Tapia (p) | 369 | 0 | 0 |
| San Pedro Pareo (p) | 384 | 0 | 0 |
| Carián (r) | 37 | 37 | 100.0 |
| Tecuena (r) | 73 | 73 | 100.0 |
| Urandén Morales (r) | 29 | 29 | 100.0 |
| Urandén Morelos (r) | 164 | 164 | 100.0 |
| San Pedrito (r) | 14 | 14 | 100.0 |
| Yunuén (r) | 116 | 116 | 100.0 |
| Yuretzio (r) | 170 | 14 | 8.2 |
| Municipio of Quiroga: | | | |
| Quiroga (v) | 3,009 | 4 | .1 |
| San Andrés (p) | 1,179 | 1,165 | 98.8 |
| San Jerónimo (p) | 1,527 | 1,513 | 99.1 |
| Santa Fé de la Laguna (p) | 2,036 | 2,036 | 100.0 |
| Atzimbo (r) | 179 | 0 | 0 |
| Chupícuaro (r) | 31 | 0 | 0 |
| Icuácato (r) | 249 | 0 | 0 |
| La Tirimicua (r) | 88 | 0 | 0 |
| Tzirandagatzio (r) | 24 | 0 | 0 |

[6] Inhabited 1944. Official census figures not available.

[7] In 1946, according to local inhabitants, Napízaro was only 50 percent Tarascan.

[8] Owing to loss of original census data, the number of Tarascans in Pátzcuaro could not be calculated. The percentage would probably be extremely low.

[P. 20-a]

TABLE 1.—*Distribution of Tarascan-speaking folk by localities, 1940*—Continued

THE LAKE AREA—Continued

191
361
162

| Locality | Total population (number) | Tarascan-speaking folk | |
|---|---|---|---|
| | | Number | Percent |
| Municipio of Tzintzuntzan: | | | |
| Tzintzuntzan (c) | 1,077 | 35 ([1] 156) | 3.2([1] 12.7) |
| Cucuchucho (p) | 295 | 279 | 94.5 |
| Ihuatzio (p) | 1,206 | 1,206 | 100.0 |
| La Pacanda (p) | 247 | 240 | 97.1 |
| Cosnembo (r) | 451 | 0 | 0 |
| Los Corrales (r) | 177 | 0 | 0 |
| Las Cuevas (r) | 99 | 0 | 0 |
| Las Granadas (r) | 92 | 92 | 100.0 |
| Ichupio (r) | 102 | 102 | 100.0 |
| Itziparámucu (r) | 46 | 15 | 32.6 |
| La Noria (r) | 32 | 0 | 0 |
| El Ojo de Agua (r) | 104 | 104 | 100.0 |
| Patambicho (r) | 281 | 0 | 0 |
| Las Pilas (r) | 67 | 0 | 0 |
| Santa Cruz (r) | 178 | 0 | 0 |
| Tarerio (r) | 201 | 194 | 96.5 |
| El Tecolote (r) | 12 | 0 | 0 |
| El Tigre (r) | 119 | 0 | 0 |
| Ucasanástacua (r) | 110 | 110 | 100.0 |
| La Verdolaga (r) | 78 | 0 | 0 |
| La Vinata (r) | 71 | 71 | 100.0 |

THE NORTHERN PLATEAU REGION

| Locality | Total population (number) | Number | Percent |
|---|---|---|---|
| Municipio of Coeneo: | | | |
| Coeneo (v) | 2,450 | 6 | .2 |
| Azajo (p) | 1,097 | 1,088 | 99.2 |
| Comanja (p) | 806 | 91 | 11.3 |
| Zipiajo (p) | 1,311 | 1,302 | 99.4 |
| Bellas Fuentes (h) | 876 | 1 | .1 |
| Laredo (r) | 345 | 1 | .3 |
| Matugeo (r) | 484 | 0 | 0 |
| Tunguitiro (r) | 749 | 2 | .2 |
| Municipio of Zacapu: | | | |
| Zacapu (v) | 6,169 | 14 | .2 |
| Cantabria (p) | 1,122 | 0 | 0 |
| Naranja (p) | 1,082 | 763 | 70.5 |
| Tarejero (p) | 1,457 | 891 | 61.1 |
| Tiríndaro (p) | 1,252 | 686 | 54.8 |
| Buenavista (h) | 224 | 7 | 3.1 |
| Lázaro Cárdenas (r) | 151 | 2 | 1.3 |
| San Antonio (r) | 909 | 0 | 0 |
| Municipio of Morelia: | | | |
| Morelia (c) | 44,304 | 32 | .07 |
| Teremendo (p) | 1,331 | 379 | 28.4 |
| Tres Puentes (r) | 176 | 6 | 3.4 |

LA CAÑADA

| Locality | Total population (number) | Number | Percent |
|---|---|---|---|
| Municipio of Chilchota: | | | |
| Chilchota (p) | 2,479 | 9 | .4 |
| Acachuén (p) | 717 | 712 | 99.3 |
| Carapan (p) | 1,259 | 1,240 | 98.5 |
| Huáncito (p) | 768 | 759 | 98.8 |
| Ichán (p) | 776 | 776 | 100.0 |
| Santo Tomás (p) | 298 | 292 | 98.0 |
| Tacuro (p) | 445 | 445 | 100.0 |
| Tanaquillo (p) | 410 | 184 | 44.9 |
| Urén (p) | 350 | 125 | 35.6 |
| Zopoco (p) | 509 | 509 | 100.0 |

[1] Number and percentage of Tarascans in Tzintzuntzan, 1945, according to ethnographical census. The percentage was calculated on the basis of 1,231 inhabitants in Tzintzuntzan.

191
361
162

TABLE 1.—*Distribution of Tarascan-speaking folk by localities, 1940*—Continued

LA CAÑADA—Continued

| Locality | Total population (number) | Tarascan-speaking folk | |
|---|---|---|---|
| | | Number | Percent |
| **Municipio of Chilchota—Continued** | | | |
| La Cofradia (r) | 69 | 0 | 0 |
| Taintzicha (r) | 117 | 48 | 41.0 |
| **Municipio of Tangancicuaro:** | | | |
| Tangancicuaro (v) | 4,782 | [illegible] | .2 |
| Etúcuaro (p) | 871 | 9 | 1.0 |

TIERRA TEMPLADA

| Locality | Total population (number) | Tarascan-speaking folk | |
|---|---|---|---|
| | | Number | Percent |
| **Municipio of Ziricuaritiro:** | | | |
| San Angel Zurumucapio (p) | 970 | 822 | 84.7 |
| **Municipio of Tingambato:** | | | |
| Tingambato (p) | 2,788 | 204 | 7.3 |
| **Municipio of Uruapan:** | | | |
| Uruapan (c) | 20,583 | 111 | .5 |
| Jucutácato (p) | 508 | 5 | 1.0 |
| La Rosa de Castilla (r) | 60 | 2 | 3.3 |
| Toreo Alto (r) | 260 | 3 | 1.2 |
| Caltzontzin (p)[19] | (?) | (?) | (?) |
| **Municipio of Ario de Rosales:** | | | |
| Villa Silva (p)[19] | (?) | (?) | (?) |

[19] Inhabited 1942. Official census figures not available.

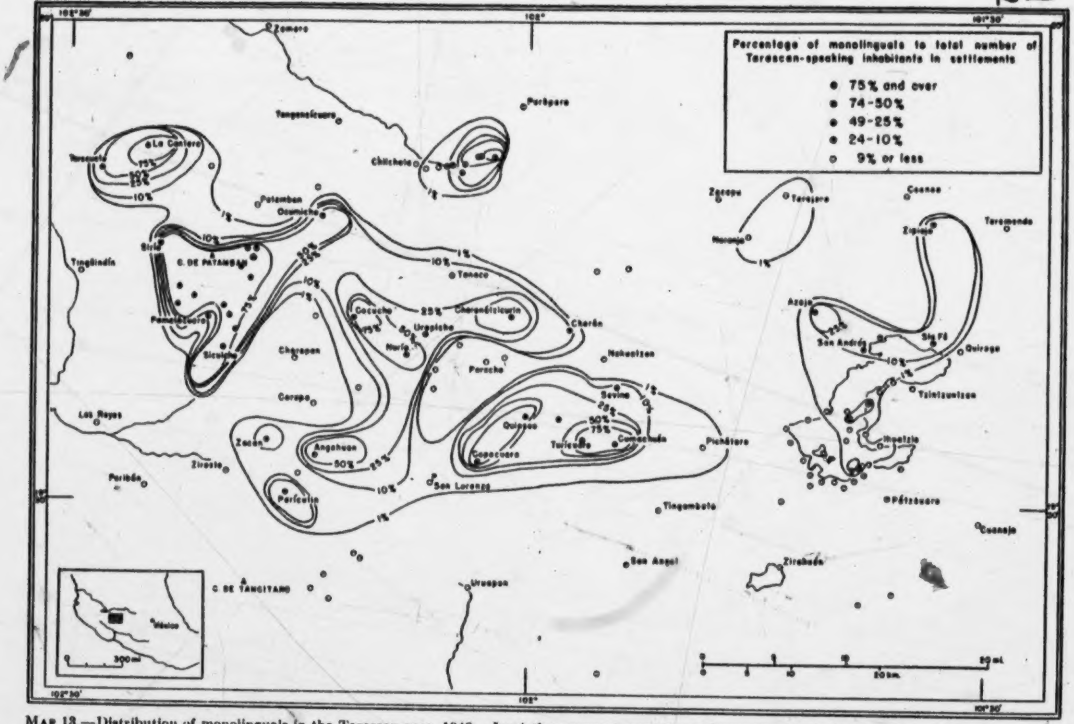
191
162

**Distribution of monolingual Tarascans.**—In spite of continued areal recession of native speech and infiltration of mestizos, monolingualism still exists in many parts of Tarasca. According to calculations from 1940 census data, approximately 38 percent of the Tarascan population is monolingual. Personal field experience, however, would indicate that a smaller proportion (probably 20 percent) speak only Tarascan. The monolinguals are composed principally of conservative women and girls and the older men living in the more isolated pueblos and *ranchos*. Pronounced monolingual centers are scattered through the Tarascan area and correspond to the islets of purely indigenous speech mentioned above (map 13). One center includes the *ranchos* around the Cerro de Patamban and also the majority of women in the pueblos of Pamatácuaro, Sicuicho, and Sirío, nearby. (According to data from the 1940 census, approximately 67 percent of the Tarascan population of this area is monolingual. Following percentages in this paragraph are calculated from the 1940 census.) Another center includes Tarecuato and the adjacent *rancho* of La Cantera (66 percent monolingual). Still another area is situated southwest of Nahuatzen, and consists of the pueblos of Quinceo, Turícuaro,

[TEXT CONTINUES BOTTOM OF P. 22 b—ANALYST]

191
162

4: West K-5 (1946) 1948 [P.21] NU34 Tarasco NU34


Percentage of monolinguals to total number of Tarascan-speaking inhabitants in settlements
● 75% and over
● 74-50%
● 49-25%
● 24-10%
○ 9% or less
102°30'
102°
101°30'
Zamora
Tangancícuaro
Purépero
La Cantera
Tarecuato
Chilchota
Patamban
Ocumicho
Sirio
C. DE PATAMBAN
Tingüindín
Pamatácuaro
Sicuicho
Charapan
Corupo
Los Reyes
Zacán
Angahuan
Paricutín
Zirosto
Periban
San Lorenzo
C. DE TANCITARO
Uruapan
Tanaco
Cocucho
Urapicho
Nurío
Paracho
Cheranástico
Cherán
Nahuatzen
Sevina
Quinceo
Capacuaro
Turícuaro
Comachuén
Pichátaro
Tingambato
San Angel
Zacapu
Tarejero
Naranja
Coenéo
Zipiajo
Teremendo
Azajo
San Andrés
Sta Fé
Quiroga
Tzintzuntzan
Ihuatzio
Pátzcuaro
Cuanajo
Zirahuén
México
0 300 mi
0 5 10 20 mi
0 5 10 20 km
75%
50%
25%
10%
1%

**Map 13.**—Distribution of monolinguals in the Tarascan area, 1940. Isopleths represent percentage of monolinguals to total number of Tarascan-speaking inhabitants in the area. Based on official 1940 census data.

[P. 22-a]

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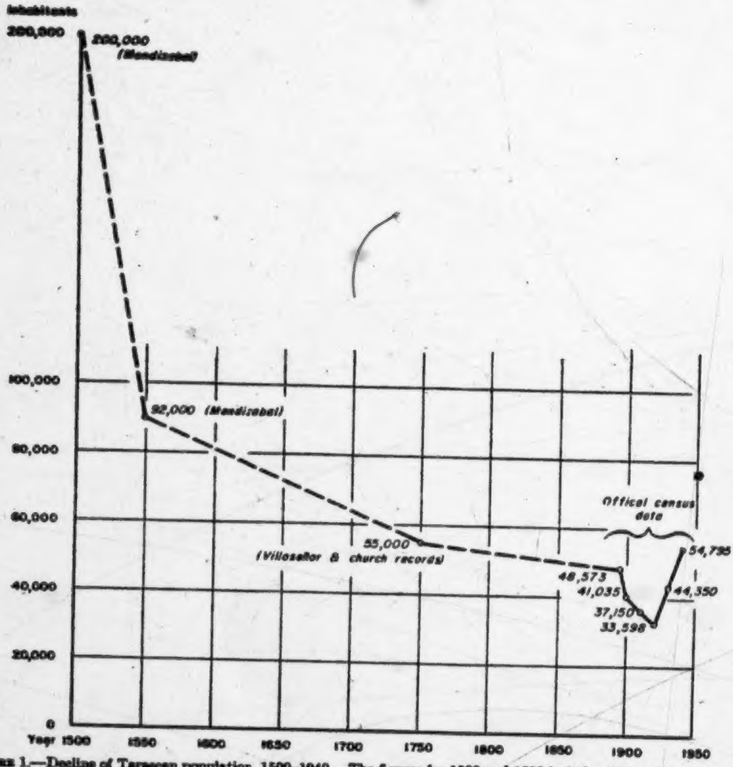

FIGURE 1.—Decline of Tarascan population, 1500–1940. The figures for 1500 and 1550 include all aboriginal inhabitants in the diocese of Michoacán. Besides the Tarascans, several thousand Otomí and some Huastec inhabited the eastern and northeastern sections of the diocese (Guanajuato and San Luis Potosí), and many people of Nahuatl speech lived in the western portion (Colima, southwest Michoacán).

191 and Cumachuén (62 percent monolingual). Moreover, the pueblos of La Cañada, adjacent to modern transportation facilities, are surprisingly monolingual (59 percent). Other scattered, ultraconservative towns, such as Angahuan, Cocucho, and Cheranátzicurin in the Sierra, contain a large number of monolinguals.

731 **Effects of Parícutin Volcano.**—The eruption of Parícutin Volcano early in 1943 caused the redis-
166 tribution of some of the Tarascan population.

[P. 22-C]

166 The inhabitants of the completely destroyed towns
731 of Parícutin and Parangaricutiro were transferred to new lands near Uruapan. Those of Parícutin were moved to the new settlement of Caltzontzin, 5 km. east of Uruapan, in February 1943. This pueblo now forms a new island of Tarascan speech in the *tierra templada*. With Government aid the people of Parangaricutiro established a new pueblo near the *rancho* of Los Conejos, 6 km. west of Uruapan, in March 1944. Another new town,

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[P. 23-a]

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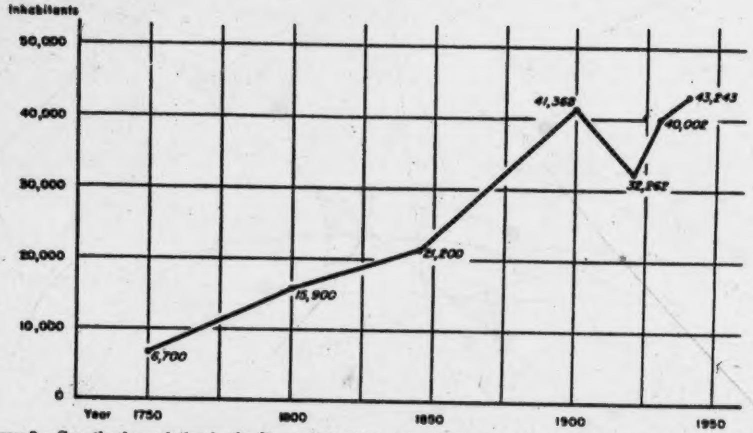

FIGURE 2.—Growth of population in the Sierra, 1750–1940. The population of the following towns and ranchos was used to calculate totals for the years indicated: Ahuiran, Angahuan, Arantepacua, Aranza, Atapan, La Cantera, Cherán, Cheranásticurin, Cherato, Cocucho, Corupo, Cumachuén, Charapan, Capacuaro, Huiramangaro, Nahuatzen, Nurío, Ocumicho, Pamatácuaro, Paracho, Parangaricutiro, Parícutin, Patamban, Pichátaro, Pomacuarán, Quinzeo, San Felipe, San José, San Lorenzo, Sevina, Sicuicho, Sirio, Tanaco, Tarecuato, Tenguecho, Turícuaro, Urapicho, Zacán, Zirosto, San Benito, San Luis, La Tinaja, El Tropezón, Uringuitiro, Zarzamora. Data for 1750 were taken from Villasenor and church records (AAM); for 1800, from church records (AAM); for 1845, from AAM, leg. 707, Memorias estadísticas; for 1900, 1921, 1930, 1940, from official census.

[P. 23-b]

166 called Colonia Dr. Miguel Silva (Villa Silva), was
731 founded by volcano refugees in August 1943, 5
km. southwest of Ario de Rosales, on the upper
margins of the *tierra caliente*. The settlement
sheltered families mainly from Zirosto and some
from Parícutin, Parangaricutiro, and Zacan.[30]
[182] The highland Tarascans have encountered several
difficulties in the subtropical habitat: increased
susceptibility to disease, unfamiliarity with subtropical
clay soils, slow adaptation to new crop
types. Consequently, within the last year (1945-
[161] 46) the population of Villa Silva has decreased
from approximately 600 to 300, owing to high
death rate and movement of families back to the
highlands; the new settlement may be abandoned
within a short time. Besides resettlement in
newly formed pueblos, many of the families from
the stricken area have moved permanently to less
damaged towns, such as Pamatácuaro, Charapan,
Paracho, Uruapan, and Zamora.

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[30] The continued activity of the volcano may force the complete abandonment of the partially ruined towns of Zacan and Zirosto. In the spring of 1946 the authorities of Zirosto were seriously considering the removal of the remnants of their townspeople to the rancho of Barranca Seca, 4 km. to the northwest.

[P. 23-c]

**Possible future trends in Tarascan population.**—Judging from the long-range trend in both
161
191
areal recession and actual numerical decrease in Tarascan-speaking folk, it would appear that the Tarascan language is headed toward extinction. Figure 1 indicates the terrific human toll taken by the European epidemics during the first 50 years of Spanish occupation, and the leveling off of the downward curve[21] until after 1920, when increases are reported by the 1930 and 1940 censuses. In the period 1930–40 the rate of increase in Tarascan population equaled that of the mestizo element. This period of increase is too short to conclude

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[21] At the end of the 18th century, decrease in Tarascan population was still outstanding enough to be reported officially to the central government in Mexico City. Commenting on the population increase in the diocese of Michoacán from 1700 to 1793, an official reports: "*Hay el considerable aumento de 58,449 vecinos . . . pero debe advertirse que este segun las noticias comunicadas por los subdelegados, é informes recogidos en el asunto, es de españoles, mulatos, y demas castas, pues en la de los Indios se experimenta mucha decadencia ó diminución originada en unos pueblos de la mezcla de estos con distintas calidades; en otros de las graves y continuas enfermedades, que han padecido; en otros de las pensiones, que cargan insoportables a su felicidad, quando es corto el número de los obligados a ellos; y en otros finalmente a la escasez de tierras para su precisa subsistencia, sobre lo qual para no confundir el estado antecedente se acompaña uno, que manifiesta los Pueblos, a quienes faltan mas de 600 varas, que por cada viento les asigna la ley* . . .". (AGN Historia, vol. 72, exped. 1 (1793)).

161 191 that a new upward trend has been established. On the other hand, there has been a considerable increase in the population of the Sierra and Lake towns since 1750, which probably accounts for the level curve during the 19th century, in spite of drastic areal recession in speech during that period (fig. 2). Today areal recession is still in progress, but actual numbers of Tarascans appear to be increasing. The question is: Can the growth in number of Tarascan-speaking children continue to exceed or equal that of the children (of Tarascan speaking parents) who fail to learn the language or cease to use it in later life? Assuming equal rates of infant mortality and similar health facilities for both groups, it would appear that, owing to cultural changes now in progress within the Tarascan area, the indigenous speech will eventually dis-

[TEXT CONTINUES TOP OF P. 246—ANALYST]

## TARASCAN SETTLEMENTS

361 621 The early Spanish adventurers and friars found Tarascans living (like many sedentary Indians of the New World) in agglomerated settlements, the larger of which the Spaniards called pueblos, the smaller, *rancherías* or *estancias*. The pueblo and the *ranchería* (*rancho*) have remained the basic units of settlement in the Tarascan area, as in most parts of Mexico.[23] In size present Tarascan [162] pueblos range from 200 to 3,400 inhabitants; the ranchos, from 9 to 900. Invariably the modern indigenous ranchos are offspring settlements from a pueblo nearby. For instance, the 11 ranchos on the southern and eastern slopes of Cerro de Patamban were formed by families, which for political or economic (land) reasons, left the mother pueblo, Pamatácuaro. Sirio, a former *rancho* of Pamatácuaro, was made a pueblo and *tenencia* ca. 1926, its name being changed to Jesús Díaz. By such a process agglomerated settlements begin and develop. Moreover, the *ranchos* on the Tari-uk'éri Peninsula, Lake Pátzcuaro, were founded 50 or 60 years ago by fisher-

[TEXT CONTINUES BOTTOM P. 245—ANALYST]

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[634] [23] Although in general these two types of settlement are differentiated by size, the terms "pueblo" and "rancho" have acquired political connotations. From the point of view of State and Federal Governments the basic political unit in Mexico is the municipio, which may contain many pueblos and ranchos. Usually the largest pueblo within this political unit is named the cabecera, or chief administrative town. The affairs of the cabecera and those of the municipio as a whole are administered by a *presidente* or mayor. The remaining pueblos in the municipio are regarded as *tenencias*, each headed by a *jefe*. The ranchos are dependencias of certain pueblos, local authority being vested in the *diputado de orden*. Upon obtaining sufficient size, prestige, or political influence, a pueblo may be elevated to the rank of villa or even ciudad. Because of historical prestige small (1,677 mestizo inhabitants) Tzintzuntzan holds the title of ciudad. Such rank, however, in no way changes the political function of the town.

161 appear. Such cultural changes—improved transportation,
191 more frequent contact with modern life, increased educational facilities both within
191 the pueblos and in the large towns outside, the Government alphabetization program—all aid
177 to increase the use of Spanish and to decrease the use of Tarascan. Such factors influence especially the younger generation. Today the young people (5 to 20 years old) of many pueblos have not learned Tarascan, and often those who know the language speak Spanish by preference. Moreover, as indicated above, mestizo merchants are still moving into the Tarascan market towns and in such centers intermarriage of Indian and mestizo continues; the offspring of such unions rarely learn the indigenous tongue.

## TARASCAN SETTLEMENTS

361 men from adjacent islands of Janitzio and La Pacanda.
621 On the other hand, the mestizo *ranchos* now found in the Sierra are the product of migration of farmers and political refugees from the outside. One of these, Arato, was established soon after the struggle for independence in 1810, and in the 1930's was given the title of pueblo with *tenencia* status.

Other types of settlement in modern Tarasca include the lumber camp (*aserradero*), an ephemeral agglomeration of workmen's huts around the sawmill. Such settlements disappear after surrounding exploitable timber has been depleted. In 1946 there were but three lumber camps in the entire Sierra. In addition, a minor form of dispersed settlement is sometimes found in the Sierra; occasionally a woodcutter and his family live permanently in an isolated house on a forested mountain slope and visit the nearest pueblo only to market products, buy supplies, and attend fiestas.

**Settlement sites.**—The few available early
361 descriptions of the Tarascan area indicate the existence of many more Indian settlements during the 16th century than at present.[22] This was particularly true in the Sierra, where small agglomerations (*estancias* or *rancherías*) were numerous. Such settlements were scattered on

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[22] The early sources which mention former settlements in the Tarascan area include the available Relaciones Geográficas, 1579-81 (Mus. Nac., leg. 102); various late 16th-century documents concerning labor and associated problems in Zavala and Castello (1939-46); many documents concerning the congregations of 1595-1605 found in AGN Congregaciones and Tierras.

[P. 25-a]

361 wooded mountain slopes (where maize could be easily cultivated with the digging stick) and on elevations difficult of access (chiefly for protection from Chichimec raids). Many of these *estancias* were likely wiped out by the early epidemics; [177] others the Spaniards probably congregated with larger towns during the last half of the 16th and first years of the 17th centuries (Simpson, 1934; Spain—Law, Statutes, etc., 1681, ley VI, tít. 3), in order to better instruct natives in Christianity and to facilitate the collection of tribute and forced labor. Probably few present Tarascan pueblos possess their pre-Spanish sites.

Modern Tarascan settlements occupy a variety of sites, most of which have level, or nearly level, surfaces. Those along Lake Pátzcuaro are on eminences or shelves above the water's edge; all avoid frequently flooded delta plains. In the Sierra many towns are located on slopes or benches immediately bordering the large basin plains; others occupy level spots in local swales. A few, such as Urapicho, Cocucho, Quinceo, and Ocu-

[P. 25b] La Cañada

361 micho, occupy benches on hill slopes. With the exception of Paracho, Sierra settlements avoid the centers of basin flats. Likely, many villages were moved from pre-Conquest mountain sites to present locations near abundant plow land. The inhabitants of Urapicho, for example, tell a legend concerning the former location of their pueblo on the high slopes of the Cerro de Urapicho nearby. Formerly many of the La Cañada pueblos occupied protective slope and hill sites in the surrounding mountains, but after the end of the 16th century they were concentrated in their present locations in the alluvial floor of the valley (map 14).

**Settlement and water supply.**—One of the most
312 significant factors in the location of Tarascan
[361] settlements has been water supply. Aside from the Lake pueblos, almost every town in Tarasca is located near a spring. While the northern plateau and southern escarpment areas abound in springs, the Sierra has ever been a problem area in terms of water supply. In pre-Conquest

[TEXT CONTINUES TOP OF P. 26a --- ANALYST]

[P. 25c]

La Cañada

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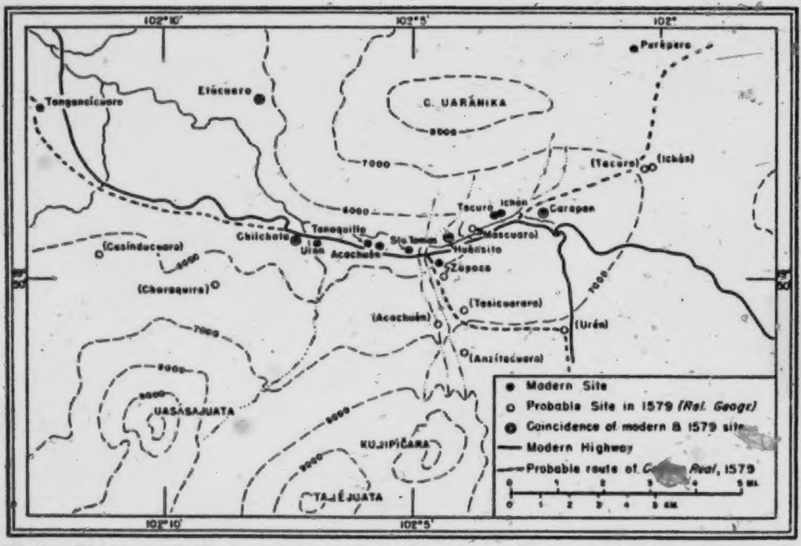
102°10'
102°5'
102°
Purépero
Tanganicuaro
Etúcuaro
C. UARÁNIKA
8000
7000
(Tacuro)
(Ichán)
Tacuro
Ichán
Carapan
Chilchota
Tanaquillo
Urén
Acachuén
Sto Tomas
Huáncito
Mascuaro
Zopoco
(Casinducuaro)
(Charaquiro)
(Tasicuararo)
(Acachuén)
(Urén)
(Anzítacuaro)
UASASAJUATA
KUJIPIČARA
TAJÉJUATA
Modern Site
Probable Site in 1579 (Rel. Geogr)
Coincidence of modern & 1579 site
Modern Highway
Probable route of Camino Real, 1579
0 1 2 3 4 5 MI.
0 1 2 3 4 5 KM.

MAP 14.—Distribution of La Cañada settlements, 1580 and 1946. The 1580 data are from Mus. Nac., leg. 102, Relación de Chilchota, 1579. The towns of Tacuro and Ichán still retain their old lands east of Charapan.

312 times many towns supplemented the scanty flow from the local spring by constructing aqueducts (čekákua, *canoas*) of hollowed half-logs to bring in water from large springs some distance away. Furthermore, wooden reservoirs caulked with pine pitch were constructed at springs to conserve water during the dry season (Mus. Nac., leg. 102, Rel. de Chilchota, f. 10v.; Ponce Relación, vol. 2, p. 6). Wooden aqueducts are still employed in many Sierra pueblos to conduct water from springs to the village outskirts (pl. 2).

The progressive exhaustion of springs constitutes one of the most urgent welfare problems in the Sierra today. Scarcity of water in that area, however, is no modern difficulty, for during the 18th century many pueblos were sorely pressed in the dry season (AGN Historia, vol. 73, ff. 212–226). [313] The present scarcity has been aggravated by continuous destruction of the forest. Some towns have partially solved the local water problem by digging wells in the adjacent basin flats. Nurío and Urapicho, whose springs have long been dry, obtain water from a common group of wells in a large basin nearby. Located within a basin, Paracho has always obtained water from wells. Moreover, the peculiar geological structure of Charapan's bench site has permitted the development of water-bearing strata beneath the town. These strata are now tapped by private wells dug in the house lots and public wells in various parts of town (pl. 2). Even the water level in wells is continually diminishing. During the dry season water must be carefully rationed to the inhabitants and their livestock. Other pueblos, which are located far from water-bearing strata in the basins and have springs that cease to flow in the dry season, suffer even more. The women of Azajo travel with burros 8 km. to San Jerónimo on Lake Pátzcuaro to fill their *cántaros*, and those of Ocumicho walk 3 km. and many from Patamban go 8 km. to the large spring at San José for water. Few towns have received Federal or State aid for the improvement of the local water supply; on their own initiative the people of some pueblos (e. g. San Felipe) have constructed concrete reservoirs to store spring water and have installed pipe to carry water to various points in the village. The majority of the towns, however, lack sufficient resources to improve their plight and continue to suffer through the dry season.

000 **Plans of settlements.**—The planning of pueblos

361 Plans of settlements.—The planning of pueblos and *rancherías* was unknown in pre-Columbian times. Settlements were amorphous, the dwellings irregularly spaced and connected by winding footpaths. Beginning around 1550, the Spaniards [177] slowly forced the natives in most parts of central Mexico to rebuild their towns on a grid street pattern, which is now predominant in most pueblos (Indian and mestizo) in Mexico.[34] The advantages of the grid, with numbered blocks and houses, are obvious in terms of tax and tribute records. Towns were also divided into *barrios* or wards, usually four or more; some *barrios* represent the congregation of outlying *rancherías* into the town. Within the Tarascan area the realinement of the street pattern was apparently continued until the close of the colonial period, for a late 18th-century description mentions the tortuous, unplanned paths and irregularly spaced houses of some Sierra pueblos, which today have the grid pattern (AGN Historia, vol. 73, ff. 285–405). At the present time only the Tarascan *ranchos* (formed after the colonial period without direction from a centralized government) are characterized by winding streets and scattered dwellings, and probably illustrate the pattern of a pre-Conquest village (map 15).

One of the outstanding features of the grid pattern imposed by the Spaniards is the plaza, or square, located in the center of the settlement. Every Tarascan village has its plaza, which functions as the commercial, social, and administrative center of the town (map 16; pl. 2). A [361] semblance of a garden and often a bandstand occupy the center of the plaza. Administrative [344] buildings (the *palacio municipal* or *jefetura* and the jail), often the school, stores, and the dwellings of the more prominent citizens face the streets bordering the plaza. Moreover, the square is the site of religious and civil festivals and the market. [346] The church, however, rarely faces the plaza, but is often placed one-half to one block distant.

Away from the plaza, which in the larger towns is surrounded by a contiguous group of buildings, most Tarascan pueblos in the Sierra are characterized by widely spaced dwellings separated by house lots. Compact towns with contiguous building throughout occur in the Lake region and in the Zacapu Basin. (Maps 16, 17; pl. 2.)

——[TEXT CONTinues bottom P. 27b]

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[34] For a discussion of the introduction of the grid street pattern into New Spain, see Stanislawski, 1947 b.

[P.27a]

Sierra

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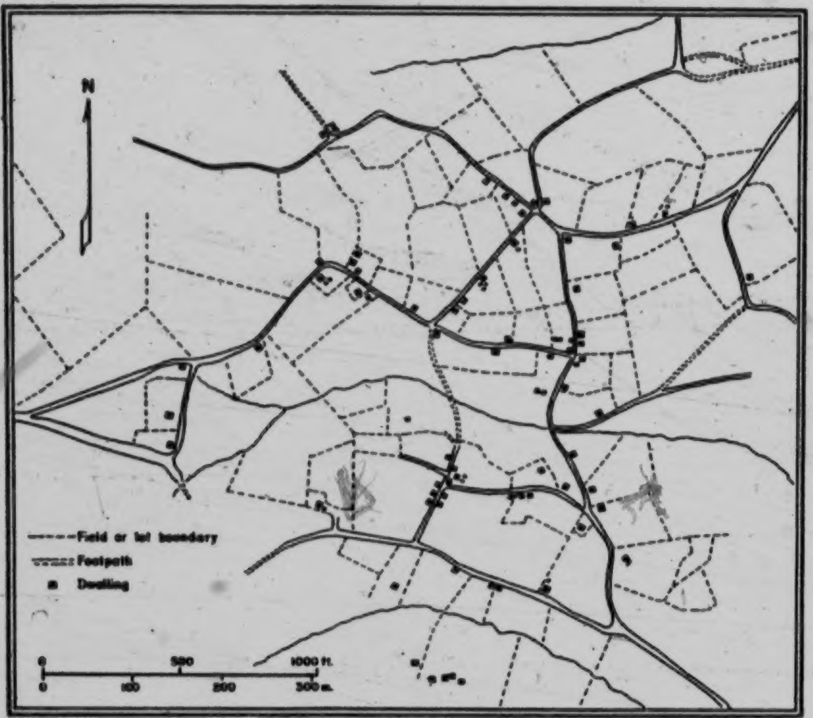
N
Field or lot boundary
Footpath
Dwelling
0
500
1000 ft.
0
100
200
300 m.

MAP 15.—Plan of Uringuitiro (Juaniqtiro), 1946. Like most indigenous ranchos of the Sierra, the street pattern is irregular and dwellings are widely spaced.

## HOUSE TYPES[34a]

342 The most striking material cultural element of the modern Tarascans is the wooden house (*troje*), constructed of logs or large planks placed horizontally and interlocked at the corners by notching or cogging in a fashion similar to the log house of Scandinavia.[35] Ordinarily the Tarascan structure is square or rectangular in plan, carries a 4-shed roof of shakes, and has a porch or veranda

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[34a] Since Beals, Carrasco, and McCorkle (1944) have discussed Tarascan house types in some detail, only a summary of the subject will be given here.

[35] South of Lake Pátzcuaro the wooden *troje* often lacks the usual notched corners, but the ends of the planks are housed in an L-shaped cornerpiece (pl. 2).

[P. 27 c]

342 attached to the front, which usually faces away from the street and toward the interior of the house lot (pl. 3). The wooden *troje* is found mainly in the Sierra, where constructional materials are abundant, and extends south to the limit of the pine forest; its eastern limit has not been determined. In the Lake, La Cañada, and northern areas houses with adobe or stone walls, rectangular plan, and two-shed roofs of tile predominate. The above distributions, however, are not rigid; occasionally a few old wooden *trojes* are encountered in the towns around the lake and in the northern plateau (pl. 4), and adobe and stone construction is increasing in the Sierra.

[Text continues bottom of P. 28b---Analyst]

[P. 28-a] Sierra

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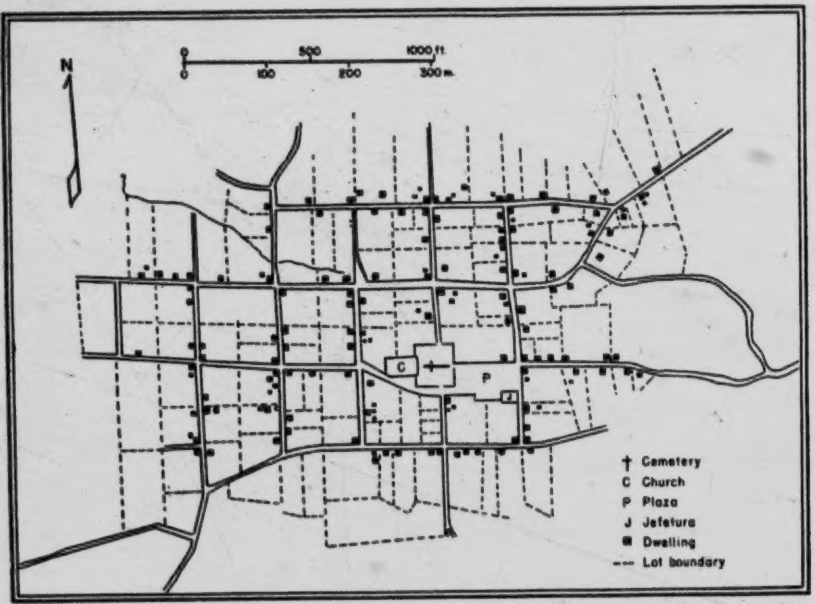
N
0
500
1000 ft.
0
100
200
300 m.
C
P
J
† Cemetery
C Church
P Plaza
J Jefatura
■ Dwelling
--- Lot boundary

Map 16.—Plan of Ahuiran, 1946. The plan is typical of small Sierra towns. Note the scattered dwellings and lot (ekuáʌu) boundaries.

[p. 28-b]

592 **Functional aspects.**—Among the Tarascans the
agglomeration of buildings in an individual lot
include the principal house, the kitchen, burro
stable, hogpen, and frequently certain storage
structures. The head of a household may build
two or more sets of houses and kitchens in his lot
for his married sons. The main house (the wooden
342 *troje* in the Sierra or the adobe structure in the
surrounding areas) serves principally as a storehouse.
The maize harvest is stored in the loft
[251] (*tapanco*), which is floored with heavy planks and
entered through a trap door by means of a ladder
or notched log. In the lower room (floored with
planks in the wooded *troje*, often dirt-floored in
the adobe house) are stored small grains, clothes,
personal valuables; it is also used to house images
of various saints, to entertain guests, and as
sleeping quarters for them; some members of the
family (usually marriageable girls) often sleep in

[P. 28-C] Sierra

342 the main house. The veranda, too, is used for storing boxes, lumber, etc., and is sometimes employed as a workplace and for sitting and gossiping.

The kitchen (kosina) is a separate building, 343 usually less well constructed than the main house. In the Sierra it is often made of thin planks placed vertically and carries a two-shed roof. Kosinas of horizontal interlocked planks and four-shed roofs are sometimes seen. The chimney is unknown; smoke escapes through cracks or especially constructed vents in the roof. The kitchens in the areas outside the Sierra are usually of adobe with two-shed roofs of tile or shakes; some are flimsily constructed of upright planks or of brush, and carry a one-shed roof.[36] Obviously, the kitchen is where food is prepared and eaten;

[Text continues bottom P. 29-b]

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[36] In some towns where the Spanish L- or U-shaped house is present, the kitchen forms one of the rooms in the main structure.

[P. 29-a]

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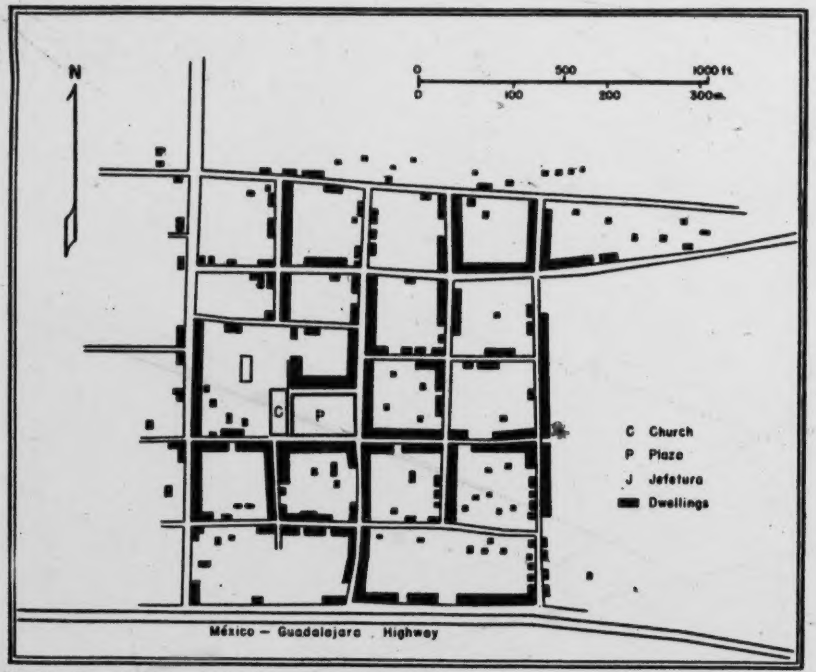
N
0 500 1000 ft.
0 100 200 300 m.
C
P
C Church
P Plaza
J Jefatura
▬ Dwellings
México – Guadalajara Highway

MAP 17.—Plan of Tiríndaro, 1946. Representative of compact Tarascan towns, most of which occur in areas bordering the Sierra.

[P. 29-b] Sierra

343 being the hearth place and the warmest of the buildings, it is also the main sleeping quarters of the family.[37]

The minor structures include the stable, chicken
roosts, and the hogpen, all constructed of logs or
rough planks; the gate roof (*puerta de golpe*) in
[251] the loft of which maize fodder is often stored;
and, in some Sierra towns, special storage build-
ings, which consist of small wooden sheds on
stilts or simply small plank *trojes* resting on a
000 crude stone foundation.[38] The house lot is fenced

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[37] For a description of the hearth types and kitchen implements, see Beals, Carrasco, and McCorkle, 1944, pp. 16, 23-24.

[38] The special storage places are called ĩmutakata in Angahuan and Charapan, uakáli in Capacuaro. Literally the term "ĩmutakata" means "addition," and is also used for the storage space in the gate roof. The *puerta de golpe* occurs not only in Michoacán, where it is most common, but is seen in mestizo towns in the Valley of Mexico. The main purpose of the roof is to keep rain from the wooden gate.

[P. 29-C] Sierra

The house lot is fenced

351 with adobe, stone, or logs; the portion facing the street may be enclosed by a high wall of planks, stone, or adobe, which joins the house at one end. Such structures are called ¢ʌn¢ʌkata in the Sierra (pl. 3). Various types of gates are used at the entrance to the house lot; the more common are the double-door affair, and those with logs placed horizontally in slots carved in opposite upright posts.

**Historical aspects.**—The provenience of the
342 wooden *troje* presents one of the most puzzling
171 features in Tarascan culture history. The structure of interlocked logs or planks is a relatively uncommon house type in Mexico, where it has a disjunct distribution. It is found in (1) Oaxaca among the Mixe, Mixtec, and Trique groups;

342 (2) Veracruz on the northern slopes of the Cofre
171 de Perote; (3) the Sierra Madre Oriental between Apulco and Huayacocotla near the Hidalgo-Veracruz border and near the Pan American highway northeast of Jacala, Hidalgo; (4) the Sierra Madre Occidental (Durango and Chihuahua); (5) isolated spots in the Sierra Madre del Sur (Guerrero) west of Chilpancingo; and (6) the Tarascan Sierra of Michoacán. The log cabin in
342 Durango and Chihuahua possibly may have been
171 introduced by United States Confederate refugees,
177 a few of whom settled in the Sierra Madre in the late 1860's and 1870's. Located near one of the main Veracruz-México roads, the Perote people also may have obtained the idea of interlocked logs from United States or European travelers or settlers. The plank structures of Michoacan are technically superior to the North American log cabin (introduced into the North American colonies from Scandinavia in the 17th century), and are known to have existed since the last quarter of the 18th century. Log cabins were apparently unknown in Spain during the colonial period. The idea of their construction may have been introduced into Mexico from northern Europe.

342 There is nothing in the Relación de Michoacán or in the available Relaciones Geográficas (Muc. Nac., leg. 102) that indicates the presence of log structures among 16th-century Tarascans.[39] The native houses were constructed of adobe or stone with four-shed straw-thatched roofs. The first definite evidence of the modern *troje* that the writer has encountered appears in the Calderon report of 1789 (AGN Historia, vol. 73), which mentions ". . . jacales de . . . vigas horizontales cubiertas de tajamanil . . ." in Turícuaro (f. 336v), ". . . cuatro trojes de Maderas de Pino, bien construidas y conservadas . . ." in Nocutzepo (Lake Pátzcuaro) (f. 301), and ". . . chozas (or casas) de madera . . ." in many other towns in the Sierra (map 18). In most pueblos, however, wooden houses were mingled with those of stone or adobe. Moreover, houses constructed of small logs or poles placed vertically ("*estacas plantadas*") were

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[712] [39] Log fortifications were constructed by the Tarascans at Taximaroa (Ciudad Hidalgo) in pre-Spanish times (Stanislawski, 1947 a, p. 49). There is no evidence, however, that the notching technique was known. For a description of pre-Conquest Tarascan houses, see Beals, Carrasco, and McCorkle, 1944, pp. 23-26.

342 [177] widespread both in the Sierra and in surrounding areas. The modern *troje*, then, appears to have been introduced into Michoacán sometime between 1580 and 1780.

Some native constructional and functional elements were applied to the log or plank structure. For instance, the square floor plan and the four-shed roof were common features of the aboriginal house. 342 251 Again, the use of the *troje* as a storehouse and the retention of the separate kitchen as living quarters would seem to indicate application of native uses to an introduced element. The storage of grain in the loft, however, may be an introduced European trait. As in most parts of indigenous Mexico, separate granaries (*trojes*) were possibly employed by pre-Conquest Tarascans.[40]

342 The wooden *troje* is disappearing in the Tarascan area. As mentioned above, a few old structures exist in some of the towns outside the Sierra. According to the local inhabitants, such *trojes* were formerly more numerous; however, there is no evidence that the entire town was once composed of wooden houses. Owing to decrease in large pines and firs, the cheaper adobe and stone structures are gradually replacing the *troje* in the Sierra towns.[41] Only a few small Sierra villages and *ranchos* consist entirely of wooden structures.

342 177 In addition to the interlocked plank house, various roofing materials have been introduced into the Tarascan area (as well as into all parts of Mexico). Aboriginally, houses were roofed with grass or palm thatch, which is still employed in the *tierra caliente* of Michoacán. During the last half of the 16th century Basque miners probably introduced the shake (*tejamanil*) to roof their houses and ore refineries at the mining centers in central Mexico.[42] From the mines the use of shakes gradually spread to Indian villages situated

[TEXT CONTINUES TOP OF P.32-a]

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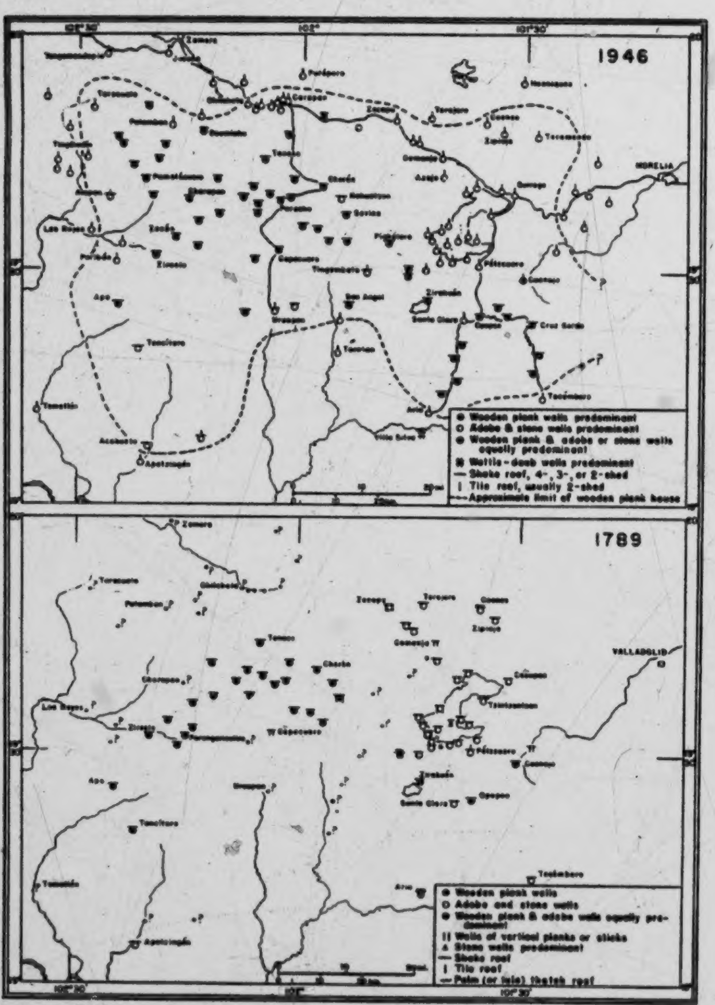
[40] One of the "temporary structures" depicted in the Relación de Michoacán is similar to the modern vaseform granaries (*cuezcomatl*) of parts of Morelos, Puebla, and Tlaxcala. Moreover, the original ms. of the Relación de Tiripitío, 1580 (in the García Library, University of Texas, Austin), illustrates a vaseform *troje* similar to that shown in the Relación de Michoacán. The Tiripitío *troje* was of two stories, the lower floor being used to store maize, the upper, reached by a notched log, for storing clothes, personal valuables, etc.

[41] Fair adobe brick can be made in the Sierra by mixing the local soil (of low clay content) with pine needles.

[42] The Relaciones Geográficas of 1579-81 (Mus. Nac., leg. 102) invariably mention shaked roofs in mining centers of New Spain. In the modern Basque country, however, shakes are used to roof only shepherds' huts (Beals, Carrasco, and McCorkle, 1944, p. 34).

[P. 31]

342
171


1946
102°30'
102°
101°30'
Zamora
MORELIA
Pátzcuaro
Tacámbaro
Wooden plank walls predominant
Adobe & stone walls predominant
Wooden plank & adobe or stone walls equally predominant
Wattle-daub walls predominant
Shake roof, 4-, 3-, or 2-shed
Tile roof, usually 2-shed
Approximate limit of wooden plank house
1789
Zamora
VALLADOLID
Pátzcuaro
Tacámbaro
Wooden plank walls
Adobe and stone walls
Wooden plank & adobe walls equally predominant
Walls of vertical planks or sticks
Stone walls predominant
Shake roof
Tile roof
Palm (or tule) thatch roof
102°30'
102°
101°30'

MAP 18.—Distribution of house types in the Tarascan area, 1789 and 1946. The 1789 data are from AGN Historia, vol. 73, Calderón report.

[P. 32 a]

342 within or near pine forests. By 1789 most of the
177 buildings in Tarascan towns in the Lake and Sierra regions were roofed with shakes (map 18). Today in the towns bordering the Sierra the red Castilian tile has completely replaced *tejamanil* and is slowly penetrating into the Sierra towns.[43]

## THE LAND SYSTEM AND THE PUEBLO

621
423 Tarascan settlements are fundamentally agricultural villages. They include not only dwellings arranged along streets and in house lots, but also the surrounding farm land. The land is the body of the pueblo, whose political and economic life revolves around land ownership and boundaries, crop planting and harvesting.

423
311 Few records exist on the ancient Tarascan land system; most lands, however, were probably held in common. Each community owned surrounding lands, the limits of which were determined by metes and bounds; the record and adjudication of pueblo boundaries were in the hands of the village chief, who apportioned agricultural plots to his subjects.[44] As in many modern Indian areas of Mexico, the aboriginal concept of village lands and their established boundaries is indurated in the present political and economic structure of the Tarascan pueblos.[45] Such holdings in the Sierra include various types of land: *monte*, or woodland pasture on steep mountain slopes and on lava flows; cropland in basin floors (*planes*, tʻpákua), on lower mountain slopes (*laderas*, uanáten), and in craters of cinder cones (*joyas*, tʻpákua-supíču). In La Cañada often the following lands are held by a given pueblo: irrigable alluvium on the valley floor, *temporal* lands and *monte* on the adjacent slopes, and *humedad* lands in the Sierra. In the Lake area types of land vary from pueblo to pueblo. Often small strips of irrigable vegetable plots are held along the lake shore; most towns hold *temporal* land on the lower slopes; those on

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[43] Although used in most Spanish towns (except mining centers) in New Spain since the late 16th century, tiles began to appear in the Lake Pátzcuaro district only in the late 18th century. In 1789 Pátzcuaro was the only town in the vicinity with tile roofs (approximately 30 percent of the houses were roofed with tile, the remainder, with shakes). In the same year one house in Naranja boasted of a tile roof. (AGN Historia, vol. 73, ff. 285, 318.)

[44] A copy of an aboriginal land title (1519) of Cheranátzicurin is extant in AGN Tierras, vol. 867, exped. 8.

[45] In many respects the native land system in central Mexico paralleled that of 16th century Spain. Particularly was this true in regard to the concept of village holdings.

[P. 32-b]

423 [311] the western and southern shore often have fields in the Sierra.

Two systems of land ownership—communal and private—prevail in most of modern Tarasca. Since the land reforms of 1915, the *ejido*, a third type of holding, has displaced most of the haciendas around the margins of the Sierra.

Since Spanish contact most of the Tarascan agricultural land has become private property of family heads. Even in the few remaining pueblos which claim complete communal ownership of their lands, a strong individualization of property has developed. The historical process of the shift from communal to private ownership is not clear. Late 18th-century documents on land disputes among the Tarascan pueblos indicate that at that time the communal system prevailed at least in the Sierra. The issuance of individual land titles may not have occurred until after the reforms of 1857. In the Sierra private landholders (*propietarios*) often possess one or more plots in the *plan*, and still others on the less fertile *laderas*. Size of individual holdings varies greatly, since land is purchasable. Normal holdings average 2 to 3 hectares per family. Traces of the communal concept exist in the minds of the modern proprietors. Although legally possible, there is little desire to sell land to nonmembers of the community. If such a transaction should arise, it usually must be approved by the town council.[46] Consequently, pueblo lands are kept intact. Moreover, individual holdings, especially those in the *plan*, are rarely enclosed, for after harvest the fields are used as communal pasture.[47] Accordingly, the final date for removal of crops and the first date for planting in unenclosed lands of each pueblo is communally regulated.

Vestiges of the ancient land system are retained in the special communal holdings found in most modern Tarascan villages. Five pueblos in La Cañada—Tanaquillo, Acachuén, Ichán, Tacuro, and Carapan—retain communal ownership of all lands, at least in name. Family heads are allotted one plot of *temporal* near the pueblo and another of *humedad* in the Sierra to the south and east. The individual allotments vary from 2 to 4

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[623] [46] The Tarascan town council is normally composed of the *representante del pueblo* and his committee of six. The *representante* deals with most internal affairs of the pueblo.

[351] [47] Fences and ditches are used most frequently to divide cultivated lands from pasture and to separate individual holdings on the *laderas*, or slope land.

423 hectares in size,[48] and may be used indefinitely by
the recipient, provided they are not left untilled
for more than two successive years. They may
[428] be inherited by sons, daughters, or in-laws, and
may be divided among them. A family head
may sell the use rights of his land to another
member of the community, but not to out[illegible]ders.
The official title to lands is held by the pueblo.

Another remnant of communal holdings, common in all parts of Tarasca, is found in the woodland, which is considered common land.[49]

[TEXT Continues TOP of P. 33b]

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[804] [48] In most parts of Tarasca land is measured in terms of the quantity of grain used in planting. Thus, in La Cañada a plot of maize land may vary from 1 to 8 liters of maize in size. Approximately 2 liters of maize is necessary to plant 1 hectare. (The term "hectare," however, is unknown to most Tarascans.) Five liters of maize equal 1 *medida*; 100 liters of maize are equivalent to 1 *fanega* (one hundredweight), or one *yunta*, meaning the amount of land in which a team (*yunta*) of oxen can plant one *fanega* of maize in one season. In terms of wheat, 44 liters equal 1 *carga*, or from 1 to 1½ *yuntas*. The above equivalents are those used in Chilchota and Carapan. Similar land measurements are employed in the Sierra.

[49] This aboriginal custom parallels the ancient Spanish practice of reserving woodland as communal property.

## TARASCAN ECONOMY

241 Tarascan economy is today, and was in pre-
Conquest times, as diversified as that of any
large Indian group in North America. Agricul-
ture has always been the preeminent occupation
of most of the Tarascan population. Formerly, a
226 significant part of the people were fishers (or
farmers and fishers), living around the shores of
Lakes Pátzcuaro and Zirahuén and the numerous
lakes and marshes of the northern plateau; the
modern fishers are limited chiefly to the islands
224 within Lake Pátzcuaro. Moreover, hunting and
gathering, although now of small importance, is
222 still practiced throughout the area. Apart from
463 the food quest, two other occupations have charac-
terized Tarascan economy since prehistoric days:
handicrafts and trade. Many of the Tarascan
[438] villages specialize in particular home industries,
for which they are famed over a large area. Again,
in prehistoric and modern times the Tarascan
has been one of the more notable Indian traders,
serving as commercial middleman between the
*tierra fría* and *tierra caliente* to the south and west.

### AGRICULTURAL SYSTEMS AND ASSOCIATED CROP TYPES

241 Tarascan agriculture involves a mixture of New
and Old World plants and cultivation practices.
177 The native trilogy—maize, beans, and squash—

[TEXT Continues bottom P. 33b]

423 311 [656] Before the promulgation of the Federal forest laws (1930's), all members of the pueblo reserved the right to cut wood and lumber in the *monte* with permission of the *representante*. Today a Federal tax must be paid (but is often evaded) by each pueblo for lumber rights. Small plots of land (*desmontes*) may be cleared and planted in any part of the forest, but the farmer must first gain permission of the *representante* and his committee. In addition to the *monte* many pueblos possess certain croplands, called *tierras de la comunidad*, which are not assigned permanently to individuals, but are worked communally, usually by landless farmers, who receive a portion of the harvest as remuneration. The remainder of the crop is often stored in the pueblo as communal property to be sold by the *representante* for the town treasury or to be used as food in time of shortage.

## TARASCAN ECONOMY

241 177 still forms the leading crop complex, but the European grains—wheat, barley, the broadbean and lentil—have become intimately associated with Tarascan agriculture. European fruits are grown with native types; Old World vegetables, mainly cabbage, have become an integral part of native food habits. But the modern Tarascan considers such crops, most of which were introduced over 400 years ago, as part of his aboriginal culture. Furthermore, although Tarascans still practice pre-Columbian shifting agriculture on steep slopes, the Old World plow has transformed indigenous cultivation on level and gently sloping lands.

Agricultural acculturation continues constantly. Tarascan *braceros* returning from the United States have brought in apple cuttings from the Yakima Valley, grapevines from California, corn from Iowa. Within the last three decades a South American *Oxalis* (*papa de Castilla*) has been introduced in the Sierra south and west of Lake Pátzcuaro. Again, alfalfa cultivation is slowly penetrating into many parts of the Sierra. [654] Recently the Federal Government introduced a few steel plows in some Tarascan villages, and here and there one sees engine-powered threshing machines slowly replacing the ancient European threshing floor and flail.

[p. 34-a]

241 177 The Tarascans, like many aboriginal groups strongly influenced by European culture, engage in two types of agriculture: field agriculture and horticulture. The former comprises extensive cultivation of grains in comparatively large fields with the plow and in small hillside plots with the hoe. Tarascan horticulture includes mainly the intensive cultivation of grains, vegetables, medicinal plants, and fruits in the house-lot gardens (ekuáɹu, sing., ekuáɹueča, pl., hispanicized to *ecuaro*); it also includes specialized truck gardening, such as that practiced on the shores of Lake Pátzcuaro.

## FIELD AGRICULTURE AND ASSOCIATED CROPS

241 261 There are three basic native food crops of Mexico: maize (starch and oil), beans (protein), and squash (vegetable vitamin), all of which are now associated with field agriculture. In most Indian and many mestizo communities this complex forms the principal elements in the common diet; the three crops are planted together in the same field, cultivated together in the same manner, and harvested about the same time.

243 [172] **Maize culture.**—The earliest record of maize in the Tarascan area is found in the charred ears encountered in a lava flow 18 km. northwest of Morelia. The date of the flow is unknown, but maize was probably known to the Tarascans when they settled in the Sierra and the northern plateau.

The provenience of maize cultivated by the early Tarascans is but a small part of the complex and obscure movements of corn from a secondary center of origin in southern Mexico or northern Central America.[80] Anderson (1946 a) has described three distinct races of *Zea mays* in central Mexico: (1) the Mexican Pyramidal, centering in the eastern highlands; (2) Mexican Narrow Ear, found in western Mexico, particularly in both cold and hot lands of Jalisco and Nayarit; and (3) Mountain Yellow, a high altitude maize (usually above 7,000 ft.) encountered in purest form in the highlands of western Mexico.[81] Located between

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[80] See Mangelsdorf and Cameron (1942) on the hybridization of South American primitive maize and *Tripsacum* in Middle America.

[81] Following is a brief description of the above races as given by Anderson (1946 a, p. 171): (1) Mexican Pyramidal. Ears short, tapering regularly butt to tip; row number high to very high (16-26). Kernels dented and pointed. Color prevailingly white and pale yellow. Plants short, pronounced interveinal red or purple coloring. Shallow root system, leaves broad and pubescent. Tassels with few or no branches. (2) Mexican Narrow Ear. Ears narrow, long, irregularly long-tapered, compressed at butt. Low row num-

[P. 346]

243 the two centers of medium altitude maize (Mexican Pyramidal and Mexican Narrow Ear), the Tarascan area has received a mixture of both. Mountain Yellow, often diluted with strains of Pyramidal, is found in the higher mountain slopes in the Sierra. Other varieties, cultivated for special purposes (green corn, sweet corn) are also found in modern Tarascan agriculture. Popcorn, however, one of the oldest maizes in Mexico, is significantly absent.

*The field corns.*—Economically the most important maize modernly grown by Tarascans is the field varieties, cultivated usually in the level lands and on lower slopes. Morphologically, this maize is similar to Mexican Pyramidal, but with pronounced denting of the seeds, little or no pointing, and medium row number (14–18). In all probability this type represents a mixture of western and eastern corns, with characteristics of the latter being dominant. In the Sierra field corn is predominantly white and is grown "*de humedad,*" i. e. it is planted in the moist t'upúri soils in the dry season (March or April). For this reason it is called *blanco marceño.* In the lower areas surrounding the Sierra (e. g. the Lake district and La Cañada) field corn is morphologically similar to that of the Sierra, but is predominantly yellow and grown "*de temporal,*" i. e. planted in the clayey čaránda soils immediately after the first summer rains (late May or early June). The planting of a few grains of red maize (čóču) [194] with the field corns (both *humedad* and *temporal*) is a common practice in many Tarascan pueblos.[illegible] Many consider the red as "father" of all maize, and as a protector of field corn from disease, storms, and drought.

Traces of western low-row number in field maize are found scattered throughout the Sierra, where such corn is known as *maíz de ocho,* although the row count varies between 8 and 10. In many pueblos it was stated that *maíz de ocho* was grown more extensively in past years, especially by the

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ber (8-14). Kernels wide, unpointed, slight to no dent. Color prevailingly white. Plants tall, slender; slight to high intervenal coloring. Tassel with many branches, long and wiry. (3) Mountain Yellow. Ears and kernels small, somewhat compressed. Ears enlarged at base with irregular rowing there. Color bright yellow.

[illegible] This practice was encountered in the following Sierra towns: Cocucho, Nurio, Urapicho, Pomacuarán, Charán, Cheranátzicurin, Pichátaro. In La Cañada: Tanaquillo, Carapan. The practice was denied in the Lake Pátzcuaro pueblos. In Nurio 1 grain of red is planted with 1,000 grains of white. Many former Tarascan towns (now mestizo) follow the custom: Tancítaro, Apo, etc. The practice may extend far beyond the present bounds of Tarascan speech.

[P. 35-a] Sierra

243 old people, but since the old ones have died, no one had continued its cultivation. This suggests that the western corn was formerly predominant in the area, which later was invaded by the eastern race.

Maize types are continually migrating from
243 one pueblo to another within the Tarascan area
177 and are also being introduced from the outside. For instance, *maíz de Sicuicho* has been grown in Arantepacua since 1889; *maíz de Chocandirán* (Nahuatl name for Tingüindín) is raised in Atapan; *maíz de Urúscato* in Tarecuato, etc. All such corns are morphologically alike, being differentiated chiefly by color. Again, in some Sierra pueblos farmers grow a corn called "toluca" or "tulukenio," presumably an introduction from the Valley of Toluca.[53] Around 1900 a maize called "chalco" from the Lake Chalco district in the Valley of Mexico was brought into the newly drained Zacapu Basin, where it now comprises the main corn of the surrounding Tarascan villages. Chalco is a modernly developed maize adapted to wet soils. In the Zacapu Basin it is grown "*de humedad*," and in recent years has been introduced into the Nahuatzen area.

*The mountain corns.*—On the steep slopes of
243 the Sierra volcanoes the small Mountain Yellow maize is cultivated in little temporary clearings (*desmonte*, čapán, čapákata). This corn is obviously mixed with eastern field varieties, as in many cases the basal enlargement of the ear is not apparent and grain form varies from point to dent. Low row number (8–14), however, is invariably present. Color varies from yellow to white, often with pink present in the pericarp. Tolerant of light frosts and infertile soils and adapted to the ancient indigenous cultivation sites and practices, this maize may be one of the oldest in the area.

*The special corns: ekuáṛu maize* (*Anderson 1946 a, 1946 b*).—One of the most interesting of the modern Tarascan corns is that cultivated in the house-lot gardens (*solar*, ekuáṛu).[54] It is grown mainly for roasting ears (*elotes*). It is morphologically distinct from the field corns,

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[53] According to Beals (1946, p. 23), the tulukenio found at Cherán is a mountain type having definite characteristics of Mountain Yellow and grown in the slopes and mountain clearings. In other pueblos (e. g. Arantepacua) tulukenio is a field maize with Mexican Pyramidal characteristics.

[54] In the Sierra and the Lake region the term "ekuáṛu" is used to mean house lot. In the mestizo towns and some Tarascan pueblos of the northern area, particularly La Cañada and west thereof, ekuáṛu means small hillside cornfields, while the Spanish *solar* is used to designate house lot.

243 having many characteristics of the Mexican Narrow: low to medium row number (10–16), usually long ears, slightly tapering from butt to tip, and slightly or nondented grains. In color it is the most striking maize of the Tarascans: blue, blue black, dull red, wine, and often white (from field corn) mixed with the above colors (*pinto*). In most villages of the Sierra the colored *elote* corns are rarely planted outside the house lot. When questioned as to the reason for this, informants invariably answered that such maize would not mature well in the fields, that it required soil of much greater *"fuerza."*[illegible] Possibly this corn has been grown so long in house lots, where refuse is thrown and animals stalled, that it has acquired a necessity for highly nitrogenous soils. 243 171 The ekuáɹu maize is not limited to the Tarascan area, but is planted in a small way in many parts of western Mexico (Colima and Jalisco). Among the Huichol of Nayarit it has acquired ceremonial significance. Possibly developed from the Mexican Narrow Ear in the escarpment area of Jalisco and Nayarit, this maize spread westward into Michoacán; it is rarely found in the eastern part of the Mexican plateau (valleys of Toluca, Mexico, and Puebla). In the Lake district red is the dominant color of ekuáɹu maize; only few ears of blue or black are seen.

*Sweet corn.*—This is rarely found among the Tarascans. In 1946 it was encountered in two towns, Teremendo and Chichota (mestizo). Because of its gummy consistency, sweet corn is never eaten green, but dried, mature grains are toasted to make *esquite*. The mature ears are called uačákata, for they resemble preserved green corn.

*Popcorns.*—The complete absence of popcorn in modern Tarascan agriculture poses a perplexing question concerning the antiquity of maize among these people. Popcorn is usually considered one of the most ancient of Mexican maizes (Anderson, 1946 a). The Tarascans were located between two popcorn centers—the western area (Jalisco, Nayarit) with its big-grained popcorns (*maiz reventador*) (Anderson, 1944) and the Toluca area with its small-grained *huilotlacaule* ("lo que comen las palomitas").

243 **Maize cultivation methods.**—Beals' (1946) description of maize cultivation in Cherán is typical

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[illegible] In Urapicho the farmers believe that ekuáɹu maize is "afraid" of the fields and consequently will not grow there.

[p. 36-a] Sierra

243 for most of the Sierra. Here, therefore, only the major processes and regional differences will be highlighted.

*Ground preparation and planting.*—On the level basin floors and lower hill slopes, land is prepared for maize planting with the plow (*arado*). [412] The ancient Egyptian two-piece affair drawn by a pair of oxen is the most common type of plow [177] used by the Tarascans and by most of the present-day farmers of Mexico. (See Beals, 1946, p. 22, for illustration of this primitive plow.) Introduced into the Tarascan area in the 1520's or 1530's, this instrument was readily taken over by the native farmers. Adaptation to the plow was possibly slow in the Sierra, where most of the aboriginal agriculture was on steep slopes; but at least by 1624 the farmers of Cherán were cultivating the lower slopes near the town with the *arado* (AGN Tierras, vol. 83, exped. 13).

Prior to the introduction of the plow the flattish basin plains of the Sierra apparently were infrequently cultivated. Early accounts of Tarascan farming emphasize the importance of *desmonte* agriculture on the steep slopes. A report of 1599 describing the pueblo of Corundapan (now nonexistent) in the Sierra near Tingambato, states that the natives had no lands in adjacent basin plains, but, as was customary among Tarascan peoples, planted on the slopes in order to obviate frost hazard.[56] The probable occurrence of a grass sod in the basin plains may also have discouraged their cultivation. A description (1603) of the lands of Capacuaro mentions the large number of *desmontes*, but points out the possibility of cultivating an unused plain nearby, which was relatively free of shrubs and trees.[57] Such areas, though difficult to till with the aboriginal digging stick, were readily adapted to plow culture.

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The plow now used in Tarasca probably has not changed in form since the early 16th century. For most plowing the straight iron plow tip (8 to 10 in. long, 3 in. wide), called the *reja*, is fastened

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[56] AGN Tierras, vol. 64, exped. 3. "*. . . no tienen tierras en los llanos y así siembran en el monte como lo acostumbra toda la nación tarasca en lo que es tierra fría por abrigar sus sementeras de los yelos . . . .*" This statement is from one of the field reports which accompanied recommendations for the village congregations at the end of the 16th century. Obviously, owing to air drainage, frost hazards are less on lower slopes than on the basin flats, a fact keenly recognized by modern Tarascan farmers.

[57] AGN Congregaciones, ff. 14v–15. Fray Diego Muñóz describes the plain as "*. . . llanada . . . la mayor parte rasa y desembarazada, fertil y facil de labrar* [with the plow, of course] *. . . capaz de mucha semilla y cosecha . . .*"

243 412 to the lower point of the frame. This instrument stirs, rather than turns, the soil to a depth of less than 6 inches. Within the last 50 years many Tarascans have used a small adaptation of the North European moldboard plowshare for breaking new land and for first and second plowings. For planting and cultivating maize the moldboard (which is slipped over the end of the plow frame) is replaced by the *reja*. As mentioned above, in recent years the Mexican government has supplied a number of American steel plows to various Tarascan municipios. 243

[231] Oxen are used almost exclusively to pull the plow, to which they are hitched by the horn yoke. Mules and horses sometimes supplement oxen during maize cultivation, when the work must be done quickly. Before being planted, maize fields are plowed, this operation being called *barbecho*. In the Sierra the *humedad* maize lands in the plains are plowed twice, once in late summer and again in late winter. Temporal maize fields located outside the Sierra undergo only one plowing—in late May or early June, immediately before the rains. For planting, rows are formed with the plow equipped with the straight *reja*. Usually rows follow the contour on slopes. Two to three seeds are dropped at 1-foot intervals into the furrow by a boy following the plow and driver. Often the boy covers the seed with earth to a depth of 3 or 4 inches with a sweep of his foot. If animals are available, the first plow is followed by a second, which covers the grain by throwing earth from the interfurrow ridge (pl. 5). This plow is often equipped with a horizontal beam (*orejera*), placed back of the *reja*, which rakes earth into the furrow. Maize is normally cultivated (earth thrown toward the plant and weeds eradicated) twice with the plow, once when the plant is about 1½ feet high (*escarda*) and again when the plant begins to tassel (*segunda*). Thereafter, fields are weeded by hand or with the hoe. [412] Zacatón (a form of Johnson grass) is cut with the *juda*, a machetelike sickle, similar to the *garabato* of the *tierra caliente*.*

412 243 Several forms of the pre-Columbian planting stick are still used in the maize fields of the Sierra (fig. 3). These instruments, called meiánta-

[TEXT CONTINUES TOP OF P. 38a—ANALYST]

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[104] * The Sierra Tarascans use many terms to describe maize in its various stages of growth. When the plant is about 4 inches high (2 weeks after planting), it is called piráu; at 1½ feet (ready for the escarda), kúni or taúta; when in tassel, pígita; when ears are in hair, tuxíni or tuxígiti.

[P. 37]

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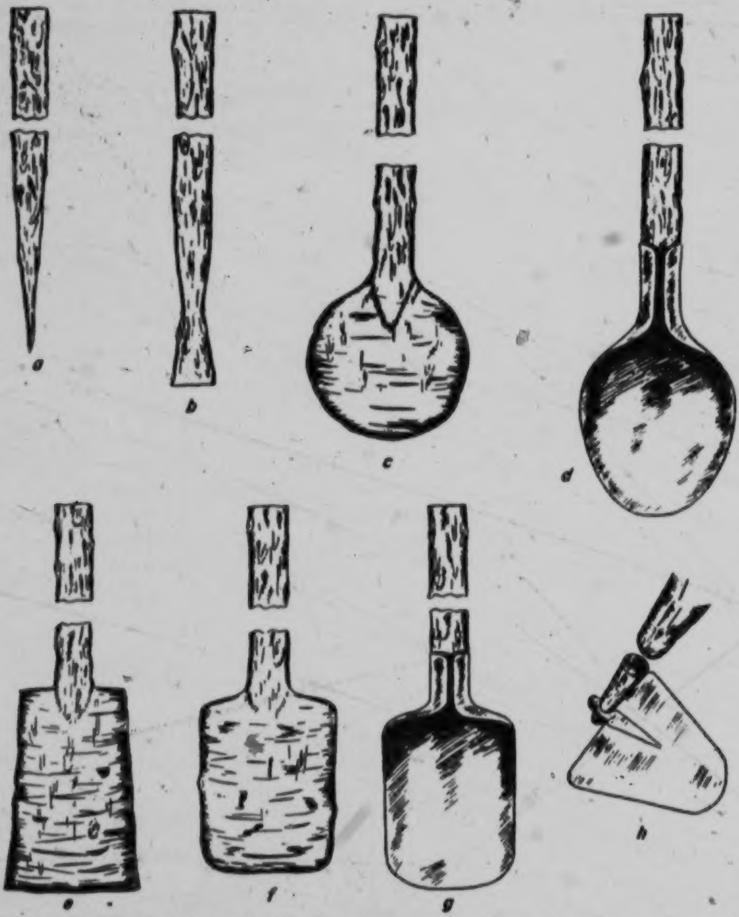

FIGURE 3.—Tarascan planting tools. *a–d*, Meiántataárakuoča, or instruments for replanting maize. *a* and *b* are probably the ancient forms of the planting stick. *c* and *d* may have been derived from the triangular coa; the round form is also used in the Tarascan paddle, Lake Pátzcuaro. *d* is also called tuufuakua, or instrument for making charcoal; it is often used to break open the kiln after the wood has been reduced to carbon. *e–h*, T'skaʃakuoča or tarákuača, sometimes used to plant maize. *e*, Pasaritárakua, instrument for flattening or patting, is more frequently employed to pat down mud and clay on the exterior of the charcoal kiln than to plant maize. *h*, Ordinary form of Tarascan metal hoe, or t'ukáʃakua. *a–c*, about 1/8 natural size; *d–h*, approximately 1/12.

[P. 38-a] Sierra

412 243 tárakua,[59] are employed chiefly to replant maize which failed to germinate or was killed by frost. The most common form is a pointed, fire-hardened stick of oak or *otate*.[60] Occasionally the stick is tipped with a chisel-shaped iron piece. A less common type of planting stick, which carries a round wooden blade, 6 to 8 inches in diameter, is reminiscent of the ancient *coa*, from which it is probably derived. The blade and handle are ordinarily of oak and of one piece. In Capacuaro a meiántatárakua with a round metal blade attached to a wooden handle was seen.[61] Another wooden instrument, called *pala* or te'káƫʌkua (sometimes simply tarákua), is used in the Sierra to plant maize in the house-lot gardens. The blade, carved of oak, is flat with an outline of the modern spade. In the wet lands of the Zacapu Basin Tarascans use this implement to plant maize in the fields.[62] There, blades purely of wood, of wood edged with metal, and wholly of metal were observed.

On the steep slopes and in small patches of soil within lava flows, where the plow is useless, the Tarascans have retained their ancient ways of soil preparation and planting. The hillside fields in the Sierra (*desmontes*) are cleared by cutting underbrush and small saplings with the *juda*, the larger trees with the ax (*hacha*), customarily during December and January. Girdling was not observed. In March the dried brush is burned, the wood ash serving as a much needed fertilizer for the leached yellow-brown soils (pl. 5). Such plots are usually productive for three to five consecutive plantings; thereafter they are abandoned for several years. A type of shifting agriculture is thus practiced on the steeply sloping lands. The small fertile plots within the lava flows, however, are permanent fields. Small permanent maize fields (*cachitos*, uaƫɨi) also occur on lower slopes near the shore of Lake Pátzcuaro. Soil retaining walls at the lower edges of such fields give them

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[59] Literally, instrument for replanting maize. The word "tárakua," meaning implement, or apparatus, forms the root of many Tarascan terms for various instruments used in the native economy.

[60] *Otate* is a bamboo with tough, woody stalks.

[61] According to a native of Capacuaro, the present distribution of the round-bladed planting stick includes the towns of Capacuaro, San Lorenzo, Paracho, Quinceo, Arantepacua, Turícuaro, Cumachuén, and (before the volcano) San Juan Parangaricutiro, all located in the southeastern portion of the Sierra near the approaches to the *tierra caliente*. (Information supplied by Sr. Pablo Velázquez G.)

[62] The planter, following the plow, sinks the spade into the bottom of the furrow approximately 8 inches, shoves the instrument forward, prying up a section of earth, under which he casts the seed; he then extracts the spade, permitting the earth to fall back on the seed.

243 the appearance of terraces.[63] Remnants of pre-Columbian terrace agriculture occur in the vicinity of Chilchota in La Cañada.[64]

412 243 In the small plots described above, the large metal hoe (*azada, azadón*, with blade perpendicular to handle) is the principal instrument used to prepare the soil. Although called by the native name (t'ekáŧʌkua or tarákua) by some Tarascans, [177] the *azadón* is European, having been introduced into Tarascan culture early in the 16th century. The aboriginal t'ekáŧʌkua (with blade parallel to handle) is no longer used to prepare soil for planting, but, as mentioned above, is still sometimes employed to replant. In pre-Conquest times this instrument (at least in the *tierra caliente*) carried a copper alloy blade (Mus. Nac., leg. 102, Rel. de Cinguacingo, 1581); the tarákua with a triangular iron blade is at present employed by the mountain people in the Balsas drainage of Guerrero (Hendrichs, 1945–46, vol. 1, pp. 31–32).

Planting in the *desmontes* and other small maize plots is performed by opening a small hole with the *azadón*, dropping in the seeds, and covering them with earth by a sweep of the foot. The seed holes are spaced 2 to 3 feet apart, but no attempt is made to form straight rows. Maize is cultivated twice (*escarda* and *segunda*) with the *azadón*.

243 *Maize harvest and storage.*—Three maize products are obtained from the field: roasting ears (*elotes*), fodder (*rastrojo*), and mature ears (*mazorcas*, šaníni). Roasting ears come mainly from the special colored corns of the house-lot garden, but many are taken from the fields. In the *humedad* lands of the Sierra *elote* is ready by August in the *temporal* lands, in July.[65] At high elevations (e. g. around the *rancho* of Cherato) the development of *elote* from corn planted in March

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[63] These apparent terraces are best developed along the north and west shores of Tariak'eri Peninsula.

[64] The following account of the terrace agriculture near Chilchota is given in the Relación Geográfica for that town (1579):

" . . . *por ser muy pedregoso y de malpais las piedras estan puestas a mano como grades dexando entre grada y grada con una vara de medir de ancho limpio donde plantaban el maiz, y es esto tanto y hecho por tal orden que parece cosa que pone espanto*" (Mus. Nac., leg. 102, f. 38v).

[796] [65] In some Tarascan towns a minor celebration occurs when roasting ears begin to mature. The first ears picked in the village are taken through the streets by girls, who invite people to kiss the *elotes*. The ears are then taken to the village church and placed on the altar. Later, when all the fields and house lots are in *elote*, girls make special tamales (učépu) of green corn for friends and the family. The *elote* fiesta is apparently a vestige of a significant aboriginal harvest rite. Other minor festivals occur on the first day of the fall-corn or spring-wheat harvests, but they are usually family days and consist mainly of a "*combate*," or drinking spree. Often special foods—tamales, čuripu (meat stew)—are prepared. There are no religious rites involved in the latter fiestas.

243 is often retarded until the following December or January.

Fodder, consisting of that part of the maize
246 plant above the ears, is cut in September, when
251 the plant is still green and the ears well formed.
In the Sierra, fodder is often stored on platforms
constructed in trees. Normally it is taken to the
village and placed in sheds or on log platforms in
the house lot (pl. 5).

243 Since the late fall maize harvest of Cherán,
described by Beals (1946, pp. 24–25), is typical of
most of modern Tarasca, no attempt will be made
to repeat the data here. In only one area—the
[493] Zacapu Basin—are four-wheeled wagons (*gua-
llines* made of the frame and wheels of abandoned
autos) used to haul maize from the fields to the
[492] village. In all other areas burros haul the ears
in sacks (*costales*) or nets. Ears of maize are
251 stored in the lofts of the main house; shelled corn
is never stored. The ekuaɹu corn that is kept for
seed and food is hung by the husks in bunches
(*piña*, sʌndáŋgata) or in rows over poles inside
the house or on the veranda.

242 *Crop rotation and fallowing.*—Except in ex-
ceptionally fertile lands, field maize is rarely
243 grown for two consecutive years on the same
ground. In the basin plains of the Sierra, corn is often planted without fallow in spots refreshed by annual deposits of alluvium, as at the base of alluvial fans and in sink areas in the center of basins. The soils of the recently drained lacustrine plain of Zacapu are so rich that they support annual maize crops without rotation or application of fertilizer. Generally in the Sierra, maize fields in the basin plains and lower slopes are fallowed for 10 or 12 months every other year. In such fields only maize is planted. Usually during a given year, half of the plains land belonging to a village and a portion of the slopes are fallowed, the rest being planted; when the village possesses more than one basin plain, cultivation and fallow are alternated from one to the other. Ordinarily in the *desmontes* and *jollas* wheat or barley are rotated with maize (one year wheat, one year maize, one year fallow). In the temporal lands surrounding the Sierra customarily two crops per year, one of maize, the other of wheat or barley, are obtained from a given piece of ground. The land is then fallowed 8 to 12 months. (Wheat planted in November, harvested following April or May; maize planted in June, harvested in

242 November; land fallowed until following Novem-
243 ber.) Often fallow and planted fields are alternated between the slopes and the plains in the temporal lands.

*Fertilization in field agriculture.*—Tarascans make little or no attempt to apply fertilizer to maize fields. Occasionally animal manure (*estiércol*) from the stables in the house lots is spread over small parts of fields nearest the village.[illegible] Sheep and cattle, however, are turned into the fields after harvest, and shepherds are often paid to bed flocks in the fields. No commercial fertilizer is used, owing to its high cost. As mentioned above, new *desmontes* are fertilized by wood ash from freshly burned brush.

**Uses of Maize**—*Food.*—As in all indigenous
262 areas of Mexico, maize is the principal foodstuff
252 of the Tarascans. Six types of maize foods are common among modern Tarascans: (1) green corn, or roasting ears (*elote*, tiríapu); (2) toasted kernels ground to powder and mixed with sweetening (*pinole*, japúmata); (3) maize dough wrapped in maize leaves and boiled (*tamal*, k'uɹúndá); (4) maize gruel, or dough dissolved in water (*atole*, kamáta); (5) boiled maize kernels with shell removed (*pozole*, máskuta), similar to North American hominy; (6) thin cooked griddle cakes of maize dough (*tortilla*, ičúskuta), at present the most important single food item.

*Elote foods.*—Green corn is prepared by parching and by boiling. Without removing the inner husk, ears are often parched in the direct flames or under burning coals. Corn so prepared is called uiríkan in the Sierra. Ears roasted with husks removed are termed "uiríkata." Boiling with husks removed (jáman) is also common. Green ears are preserved by boiling and drying in the sun for many weeks. In the dried form they are called uačákata, and the consistency of fresh corn is revived by soaking and reboiling. Other types of maize foods are made from *elote:* a tamal (uččépu) from early green maize; various atoles (atole de grano, atole de t'okéri, de uačákata, etc.); maize which is between the green and mature states (t'okéri) is often ground, shaped into small cakes, and boiled. The maize most frequently used for

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[illegible] In only one instance did the writer observe systematic application of manure. This was near the new Tarascan town of Caltsontzin, 5 km. east of Uruapan. In planting maize, the planter was followed by an individual who dropped a handful of manure over the seed. A plow followed, covering the seed and manure.

262
252 the above-named foods is the highly colored flour types grown in the house-lot gardens.

*Pinole* has the widest distribution and is possibly the most ancient of the maize foods in the New World. Among the Tarascans usually yellow maize from the *desmontes* is employed for pinole. The grain is toasted on the *comal*, then dry-ground on the metate, piloncillo being mixed in during the grinding process. *Pinole* is used almost exclusively for food on long trips. *Esquite* is prepared also by toasting whole grains of dried sweet or black *elote* corn on the *comal*, but it is not ground.

The preparation of tamales, pozole, atole, and tortillas among the Sierra Tarascans is discussed by Beals (1946, pp. 49–52). In preparing all four types, hard-shelled maize is first soaked and cooked in lime water to soften or remove the hard outer shell that covers each grain. (Beals mentions the use of oak ashes in soaking corn for pozole.) For tamales, atoles, and tortillas the soaked grains are wet-ground on the metate or in power-operated grinding mills (*molinos de nixtamal*). The fact that they form an essential part of fiesta and ritual foods of most Mexican Indians suggests that tamales and atoles may be more ancient than tortillas. The latter are commonplace in each of the two or three daily meals and carry no ritual significance. Moreover, the varieties of both tamales and atoles are numerous. Beals describes 10 atoles habitually made in Cherán; 11 kinds were noted in Sicuicho, only 5 of which were similar to those in Cherán. The varieties of atole are ordinarily distinguished by the addition of some flavoring, such as ground blackberries or herbs.

231 *Animal feed.*—Maize grain is commonly fed to livestock, notably for fattening hogs. Yellow corn, mainly Mountain Yellow, is considered the best for feed, as it has the highest oil content of all Tarascan corns; moreover, apparently the yellow color gene is associated with proper vitamin content for animal growth and fattening.[9]

*Sale of maize.*—The Tarascan Sierra is primarily
439 a subsistence area in terms of maize, but when crops are good surplus grain is sold to buyers from Zamora, Tangancícuaro, Uruapan, and Zacapu. The surplus maize districts are

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[9] According to Edgar Anderson (personal communication), in Jalisco the Yellow Mountain maize brought down from the highlands sells at a premium in the hog-raising districts south of Guadalajara.

[P. 40b]

439 located around the Sierra in areas favored by irrigation or rich soils, such as the upper escarpment in the South or the Zacapu Basin in the North. White field maize and yellow field maize comprise the bulk of the export crop. Ekuaru maize is entirely for home consumption and most of the mountain crop is used locally. Accurate statistics on crop production and export are not available for the Tarascan area; export data probably do not exist, since public records of sales are not kept in the villages.

244 **Bean culture.**—As an aboriginal cultigen the bean (*frijol*, t'aȼʌn) is second only to maize in Tarascan agriculture and food habits. Twenty varieties of the kidney bean (*Phaseolus vulgaris*) are cultivated in modern Tarasca. Although most of these are found in many parts of central Mexico,[68] a few may be peculiar to the Sierra of Michoacán. Among the latter are small cream- or brown-colored beans called *petrona* or uašári in some Sierra villages; another is called karáŋari. The Indians regard such beans as "criollos," or natives to the local countryside, while other varieties, [177] which carry non-Tarascan names, are acknowledged to have been introduced from the outside. Many wild beans are reported to exist in the Sierra, though only one, called uipínju (probably *P. vulgaris*) was described in Pamatácuaro, where it is tolerated along edges of maize fields. It is gathered and eaten, but is little liked.[69]

Besides the kidney bean, the Tarascans cultivate the large-seeded *Phaseolus coccineus* L. (*P. multifloris* Willd.), which they call kokóȼ (the ayocote or ayocotl of the Nahuatl-speaking people).[70] This bean is rarely grown or used by mestizos and even among the Indians its cultivation is dying out.[71] It is now grown only by the more conservative people, especially in the house-lot gardens where it is planted and tended by women. Kokóȼ, therefore, must be an old cultigen in the area. Having a sweet flavor, it is not as well liked as the newer kidney beans from the outside. In some of the Lake pueblos kokóȼ has

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[68] The common central Mexican varieties are: Bayo Grande, Bayo Chico, Mexicano, Colorado, Color de Rosa (Rosa de Castilla), Encerrado, Prieto, Blanco, Huiguerilla, etc.

[69] Unfortunately, a seed specimen of this bean was unobtainable. Another doubtful wild *Phaseolus* is reported from Corupo; called *frijol cimarrón*, it produces a white seed and an enlarged root stalk ("raíz como camote").

[70] The Spanish terms "*patole*" and "*frijola*" are also used in some localities. In Pamatácuaro *P. coccineus* is known as jepe.

[71] In many pueblos (Sierra and Lake regions) it was stated that kókoȼ was cultivated many years ago, but since the introduction of better flavored beans from mestizo towns, it was no longer grown.

244 special uses: e. g. because of its sweet flavor, it is eaten only with silacayote (*Cucurbita ficifolia*); in Ihuatzio it is ground with black maize to make pinole.

Lima beans (*P. lunatus*) may have been common formerly in Tarascan agriculture in the *tierra caliente*. In Acahuato, a former Tarascan pueblo (5 km. north of Apatzingán), a climbing brown-seeded lima called *comba* is still grown in the house-lot gardens. According to local informants, it was formerly an important bean in the Tepalcatepec Basin.[72] Moreover, the writer found a wild climbing lima in the hedge rows in the *tierra templada*, near Los Reyes.

*Cultivation methods.*—Except in some highly developed irrigation districts, most Mexican peasant farmers still use the ancient Indian method of planting beans with maize. In plowland Tarascans customarily alternate plantings of beans and corn along a given row (planted *intercalado*), whereas in hoe land beans and maize seeds are dropped in the same hole.[73] In either case the bean vine uses the maize stock as a climbing support, and imparts nitrogen to the soil. Beans are gathered in late fall or in early winter a few days before the maize harvest. When [462] men are busy at other tasks, women and children gather the bean crop. Women sometimes plant beans with *elote* maize in the ekuáɹu; or often they plant beans alone, using poles for vine supports.

In many Tarascan pueblos bean production is declining; in some, farmers have ceased its cultivation. They claim that it is cheaper to buy *frijol* rather than to plant it, since the time and labor involved can be used more profitably at other tasks (e. g. lumbering). Others say that the soil lacks sufficient fertility to mature a bean crop. Again, in some sections of the Sierra beans are cultivated (with maize) only in newly cleared *desmontes*, where the ash from burned brush strengthens the soil sufficiently to raise one crop.

*Use of frijol.*—Beans are used exclusively for [252] human food. They are boiled in *ollas* and served with salt. Tamales filled with beans are not uncommon. The special uses of kokóȼ have been mentioned above.

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[72] Hendrichs (1945-46, vol. 1, pp. 40, 238) reports a bean called "comba" from the Balsas Basin, but identifies it as *P. coccineus*. The "comba" from Acahuato was identified as *P. lunatus* by Dr. R. W. Allard, College of Agriculture, University of California, Davis, Calif.

[73] In both cases the planter carried two bags (*morrales*), one containing maize seed, the other, beans.

244 **Squash culture.**—The cucurbits complete the ancient Mexican crop complex. Three species of the genus *Cucurbita* are today cultivated in the Tarascan area: *C. pepo* (*calabaza común* puɹú), *C. moschata* (*calabaza de Castilla*, puɹú), and *C. ficifolia* (*silacayote* or *chilacayote*, t‘ik‘á¢ʌ or tiká¢).[74] *C. pepo* appears to be the ancient squash of the area, for it is referred to as *calabaza comùn* or *calabaza corriente*, and in mestizo villages nearby as *calabaza tarasca*. Surprisingly few varieties occur, the most common being oblong (20 cm. long), ribbed (10), green and yellow mottled, with the ordinary five-sided peduncle. Smooth types are also cultivated. A small *pepo*, called čekámita, is grown in a few villages of the Sierra and La Cañada. In some pueblos the common name of *C. moschata* is *calabaza de la* [177] *Castilla*, which may indicate that this squash was introduced into the area after the Spanish Conquest; it is found mainly around the edges of the Sierra. Some varieties are flat and round, similar to the pumpkins of the northeastern part of the United States. Others are small, crookedneck types.

In contrast to its minor place in the agriculture of many indigenous groups of Mexico, *C. ficifolia* is an important cultigen among the Tarascans. Two varieties are grown, both having the appearance of a watermelon: one with black seeds (*chilacayote común*, tiká¢), and the other with white seeds (*chilacayote-calabaza*, puɹútiká¢ʌ). Of the two, the latter is said to have the better flavor.

Like *frijol*, squash is ordinarily planted with maize in both plow and hoe lands. Squash seeds are rarely planted in the same hill with maize and beans; rather the plantings are widely spaced (5 to 6 meters) along the rows or edges of the field in order to allow for spreading. *Chilacayote* (and often common squash) is usually planted in the fertile house lots or in the *desmontes*, where the soil has been fertilized by wood ash. Within the plowlands it is sometimes planted in a *quemazón*, a spot where a log is burned and ashes well mixed with underlying soil. Squashes are gathered in October or November before the maize harvest. [251] Chilacayotes are sun-cured on roofs or on adobe fences for 3 or 4 weeks, and are then stored in the house loft or in a corner of the dwelling.

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[74] Botanical identification of the squash seed collected in the Tarascan area was kindly made by Dr. T. W. Whitaker, of the United States Department of Agriculture.

*Squash foods.*—Both common-squash and chila-
252 cayote are cut into pieces and boiled with the rind. Squash is often candied with piloncillo in mestizo towns nearby, but rarely in Indian communities. Squash blossoms (kukúmu, puɹú-¢ʌ¢ʌ́ki) are boiled and eaten with salt and chile, and immature fruits are often stewed. Chilacayote, which has a watery, stringy flesh, is especially liked throughout the Tarascan area, and in the Sierra during the spring (when other vegetables are unavailable) it is eaten with an atole flavored with the nuríteni herb. In many pueblos the flesh is soaked in
[273] water and permitted to ferment, forming a refreshing drink called *tepache*.[75] Finally, an atápakua, or stew of chilacayote, is often made by the Sierra Tarascans; the flesh is boiled with onion, silantro, and chile.

**Other native crops.**—Apart from the maize-
243 bean-squash complex, a few other indigenous cultigens are found in modern Tarascan field agriculture. From the point of view of culture history, one of the most significant of these is amaranth (*Amaranthus cruentus*), which in most parts of Mexico is called *alegría* or *bledo* and in Tarascan, paɹi. The tiny (1 mm. diameter), round seeds, which occur in spikes at the head of the plant (1½–2½ meters tall), are rich in starch and oil. Sauer (1936) has suggested amaranth as one of the pre-maize cultigens of southern North America. Today it is cultivated in small amounts in many parts of central Mexico, usually in isolated Indian pueblos.

Among the modern Tarascans, especially those of the Sierra, three varieties of amaranth are grown: white, red, and black. Cultivation is usually limited to *t'upúri* soils of the highlands and to the house-lot gardens. It is planted both in plowland and in *desmontes*, but only in small patches within or at the edge of maize fields.[76] In the plowland the small grain is planted in *quemazones*. The log (usually oak) is burned in January and the seed planted in late May, immediately before the rains. The seed is also sown in freshly burned *desmontes*, but in the house lots ash fertilizer is rarely used. All three varieties

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[75] Tepache is a general name for a number of drinks common to western Mexico, e. g. *tepache de piña*, *de chilacayote*, etc. To make *tepache de chilacayote*, the flesh of the squash is placed in an *olla*; water, piloncillo, and often soda water (*carbonate*) are added. Fermentation sets in immediately, and after 3 days the beverage is ready for consumption. After the first *olla* of *tepache* is consumed, more water, etc. is added to the flesh and the process repeated. The meat of one chilacayote is said to last 1 year of repeated fermentation.

[76] Fields of *alegría*, similar to those around Tulyehualco at the southern edge of the Valley of Mexico, are never seen in the present Tarascan area.

243 are planted together, the seeds being separated according to color after the harvest. The plant is cut with a sickle in November or December, the grain threshed in an open space in the fields and stored in small ollas in the troje.

The cultivation of amaranth is disappearing among the Tarascans; it would probably die out rapidly if women did not constantly remind men to plant it every year. In some Sierra pueblos it is no longer grown, but grain is brought in from [439] other towns, particularly from Pamatácuaro and its surrounding ranches and from Capacuaro.[77] Little is grown in the Lake towns or in La Cañada, the grain being imported from the Sierra. In a few pueblos it was claimed that *alegría* was neither cultivated nor eaten: Paracho, Huánsito, San Jerónimo, Puácuaro, Napízaro.[78]

In terms of quantity consumed, amaranth has 262 little importance in present Tarascan diet. Its significance lies in its relict position in Indian culture. Today the most widespread amaranth 252 food among the Tarascans is a tamal called "č'apáta," made from a mixture of ground maize and *alegría*. Blue or black ekuáru maize is dry-ground on the metate; red or black *alegría* is then ground into the maize flour; a sweetening (piloncillo) and water are stirred into the mixed flour, and the resultant dough is wrapped in maize husks and boiled in an olla. In some pueblos of La Cañada ground *alegría* is mixed with wheat flour and piloncillo, of which tamales called č'apátas de trigo are made. Moreover, *bolitas*, confections made of white amaranth, are made, but are more common in adjacent mestizo towns. The grain is toasted on the *comal*, then mixed with honey or a paste of piloncillo to make small cakes. These are commonly sold at fairs or on fiesta days.[79] Few ceremonial or religious uses of amaranth were found in the Tarascan pueblos.[80]

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[77] Curiously, the Sierra pueblos which no longer cultivate *alegría*, but import grain for home use, are some of the more isolated, such as Urapicho, Cocucho, Nurio, and Pomacuarán. In these towns no reason was given for not growing *alegría*. Possibly the inhabitants found it less bothersome to buy the grain than go to the trouble of raising it.

[78] Modern amaranth cultivation extends beyond the present limits of Tarascan speech in Michoacán. It is still grown and used in the former indigenous towns of Apo, Tancítaro, Sirahuén, Opopeo, and in some mestizo ranches north of Uruapan.

[79] In Pamatácuaro an atole is made of amaranth and black maize. Such atole is widespread in the highlands of northern Guerrero (Hendrichs 1945–46, vol. 1, p. 35); and is probably encountered in other indigenous areas of Mexico. In Atapan a pakša (ground grain boiled in water to a solid mass) is made of red *alegría*.

[80] In Pamatácuaro atole of black *alegría* and black maize is taken especially at the maize planting celebrations. In Sicuicho č'apátas are eaten at both the maize planting and harvesting fiestas. In other pueblos special uses of amaranth were denied.

244 Tarascans plant few other minor native cultigens in the field. Camote or the sweetpotato (*Ipomoea batatas*) and jícama (*Pachyrrhizus erosus*) are planted in small amounts in La Cañada, but commercial production is found in the warm lands around Zamora, Lake Chapala, and the southern escarpment, outside the Tarascan area. Native vegetables such as chile and tomatoes are discussed under horticulture.

**Introduced New World crops.**—In Tarascan 177 field agriculture these consist of two tubers: the 244 South American potato (*Solanum tuberosum*) and, as mentioned earlier, an *Oxalis* (*papa de Castilla*).[81] Neither has much place in Tarascan food habits. The potato is now grown in some lowlands bordering the Sierra, e. g. in Comanja, where it is planted with maize. Its cultivation is slowly penetrating the Sierra, though most of the highland pueblos still reject it. Beals (1946, p. 26) states that Cherán residents began to grow potatoes around 1938.

**Old World crops in Tarascan field agriculture.**— 243 Among the crops which the Spaniards introduced 177 into Tarascan culture the small grains, wheat and barley, were the more significant in terms of both food value and degree of adaptation. Wheat was probably first sown in the Lake area by Spanish missionaries during the 1530's; the Spanish ranchers and *encomenderos*, however, for whom white bread was the main item of diet, were the principal carriers of wheat culture among the natives. By the mid-16th century Spanish wheat fields had been established in many parts of the northern plateau, and Tarascans of various pueblos in that area were cultivating the grain in special fields in order to meet tribute demands of the Crown and *encomenderos*.[82] Arabic irrigation [312] techniques appear to have been introduced jointly with wheat culture, for both early Spanish and Indian wheat fields in the northern Tarascan area were artificially watered.[83] The Relaciones Geo-

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[81] The name "*papa de Castilla*" might indicate that the *Oxalis* species has been cultivated in Mexico for some time. According to local informants, however, it has been known in the area south and west of Lake Pátzcuaro for only 30 or 40 years. The tuber is often seen in the Pátzcuaro market. In Pichátaro it is boiled and eaten with piloncillo.

[82] The Suma de Visitas, ca. 1540 (Paso y Troncoso, 1905, vol. 1) mentions that wheat was cultivated in the following indigenous pueblos of Michoacán: Acámbaro, Chocándiro, Chiquimito, Chilchota, Guanaxo (Santa María Ario), Taymeo, Indaparapeo, Zacapu. Indians, however, were slow to adopt wheat foods. During the last quarter of the 16th century the Indians of La Cañada ate wheat only in times of maize famine (Mus. Nac. leg. 102, Rel. de Chilchota, 1579).

[83] Spaniards had introduced a Mediterranean grain adapted to winter rains and dry summers into a land of dry winters and wet summers. Con-

[P. 43b]

243 gráficas of 1579–81 (Mus. Nac., leg. 102) indicate
177 that by the end of the 16th century wheat cultivation was well established in the Tarascan area around the margins of the Sierra, i. e., in those areas first settled by Spanish ranchers.[84] Wheat penetrated slowly into the conservative Sierra. The Relación of Tingüindín (1581) states that in the Sierra villages the Indians had not taken to wheat cultivation. Even by 1789 some of the Sierra pueblos did not grow wheat, but by 1820 the grain was at last being cultivated in all the towns, Urapicho, Cocucho, Pamatácuaro, and Cheranátzicurin being among the last to adopt it (AAM, siglo XIX, leg. 707, Memoria estadística, 1841).[85]

243 Today in most Sierra pueblos wheat is considered second only to maize in terms of acreage. Some towns raise the grain chiefly as a cash crop; others consume a large portion of the harvest. The Lake area and La Cañada, however, are the principal Tarascan wheat districts. In both, wheat acreage exceeds that of maize.[86] Although wheat foods are eaten in all Tarascan towns, in none do they replace maize as the chief item of diet. Throughout the present indigenous area
[177] wheat foods play a significant part in religious festivals, apparently an adoption of European customs through Church influence.

A soft wheat called "colorado," probably a descendant of the Spanish grain introduced 400 years ago, is the principal type sown by Tarascan farmers. Both bearded and beardless varieties occur. This wheat is the "*trigo de temporal*" or "*trigo aventurado,*" planted in October and harvested from April to June, depending on eleva-

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[312] sequently, to insure good yields, they resorted at once to irrigation. Later, experiments probably showed that a poor to fair yield could be obtained without irrigation in central Mexico, where occasional light winter rains occur.

[84] The wheat-growing areas mentioned: all of the northern plateau region, including La Cañada; Tarecuato (trigo de temporal); Tingüindín; and Peribán. The Ponce Relacion (observations made in 1586) mentions wheat at various Lake towns: Tzintzuntzan, San Jerónimo, Erongarícuaro, and Tacupato (Cocupao or present Quiroga).

[85] The Calderón report of 1789 (AGN Historia, vol. 73) mentions wheat only in a few Tarascan pueblos. It specifies, however, that only two pueblos (Ocumicho and Pamatácuaro) of the Sierra grew maize exclusively. The report may have neglected to indicate many pueblos in which small amounts of wheat might have been cultivated.

[86] According to data from Secretaría de Agricultura records (1944), wheat acreage equaled that of maize in the municipio of Pátzcuaro; in those of Ero[illegible]cuaro and Quiroga the acreage of wheat was more than twice that of maize; in Tzintzuntzan, however, maize acreage exceeded that of wheat by eight times. In the municipio of Chilchota (which includes La Cañada) approximately [illegible]80 hectares were planted to maize, while 313 were in wheat. Considering the valley of La Cañada alone, wheat acreage probably would exceed that of maize.

[P. 44a]

243 tion.[87] Owing to dry conditions and usually poor [132] soils, yields are low. The infrequent light winter rains (*cabañuelas*) often determine the success or failure of the temporal crop. Another wheat type, a white soft variety, is called "*trigo de aguas*"; sown in June or July and reaped in November or December, it is seen in all parts [312] of Tarasca. Most of the wheat crop of La Cañada is irrigated, being sown on the valley flats in December and harvested in May.[88] In the Sierra wheat is relegated to the less fertile slope land and *desmontes*, where it is rotated with maize. In the lake area and the northern plateau towns, where the grain is likewise a rotation crop, it is cultivated on both plains and slopes. It is occasionally sown in the house-lot gardens in all parts of Tarasca.

Primitive European methods are used in wheat cultivation (pl. 6). Land is prepared by plowing with oxen, and seed is sown broadcast and covered with a brush harrow. Grain is cut with the sickle (*hoz*), bundled and tied by hand, and threshed in the *era* (an open arena floored with stone or packed earth) located in the town or in the field. Threshing is accomplished by driving mules or burros over the bundles of wheat, but where sufficient animals are lacking, it is done by flailing. The grain is separated from straw and chaff with the tarákua, or wooden spa[illegible]ll straw is carefully saved for animal feed. ([illegible]e-powered separators are just beginning to appear in the area.)

One of the most interesting aspects of wheat
252 culture among the Tarascans is the varieties of
262 food prepared from both metate-ground and milled flour. Those made from grain wet-ground on the metate include *tortillas de trigo*, a common food in La Cañada, but eaten on fiesta days (e. g. Corpus) in the Sierra towns.[89] In Charapan the tortillas are thin, round cakes often 1 to 1½ feet in diameter, which are cooked on the comal. Thicker tortillas, or *gordas*, are similarly made, but browned on the coals.[90] For the Corpus fiestas *gordas* (piɹíčis) ¾ to 1 inch thick and shaped like

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[87] For example, most temporal wheat in the Lake region is harvested in early April, while in the Sierra ripening is retarded until May. In Cumechuén, the highest pueblo in the Sierra, harvest occurs in the first weeks of June.

[88] The *trigales*, or wheatfields, are watered three times annually, at the end of January, first of March, and at the end of March. Pan irrigation technique is used.

[89] In the Lake towns of Ihuatzio and Janitzio metate-ground wheat dough is mixed with nixtamal (maize dough) to make a tortilla called ítakata.

[90] Beals (1946, p. 52) mentions that in Cherán *gordas de trigo* are fried in deep pork fat. This procedure was not encountered in other Tarascan towns.

252 animals (birds, rabbits, pigs) are made in some
262 Sierra towns. In La Cañada, however, such figures are prepared from leavened flour dough and baked in the oven.[91] Another wheat food, which is eaten particularly during and immediately after the wheat harvest, is called pakésʌ. Wheat grains are roasted on the comal, then dry-ground on the metate. The coarse flour is cooked in boiling water flavored with salt or piloncillo. The resultant dough is eaten hot or cold. Moreover, a wheat pozole (whole grains stewed with meat, chile, *tomate*, etc.) is prepared in the Lake and La Cañada areas, but rarely in the Sierra. Again, a wheat atole (trígukamáta) is found in all parts of Tarasca. Various types of bread, called *cemitas* or auákatas are also prepared from metate-ground wheat, usually by professional women bakers. The dough is often sweetened and the breads variously shaped (round or diamond). The dough is baked in the dome-shaped Spanish oven, several of which are found in every Tarascan village. Unsweetened ceremonial breads (kanákua), 1½ feet in diameter and 2 or more inches thick, are made on the Saint's day in some Sierra pueblos.

Wheat foods are also prepared from flour, milled in the larger mestizo towns nearby. A bread called kuɹínda is baked in the Spanish oven in most pueblos. In La Cañada and the Lake towns tamales (prepared like those of maize) and tortillas are made from wheat flour.[92] Buñuelos, a special dish prepared from wheat flour, are eaten ceremonially or as an occasional treat in all parts of Tarasca. The dough, mixed with tequisquite (a lime compound), salt, and boiled green tomatoes, is thinned into flat cakes by placing on the knee, patting and pulling at the edges. The sheets of dough are cooked in boiling lard in a *casuela*. In the Sierra both men and women prepare and cook *buñuelos*, which are eaten only on certain holidays. Often on ordinary occasions this food is soaked in a sirup of piloncillo and eaten with white atole in the Lake area.

*Barley cultivation.*—Small amounts of barley
243 are cultivated in most parts of Tarasca, but primarily in the Sierra, for animal feed. The grain is sown in June and harvested in November and

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[91] Formerly in Charapan large pirúkis, shaped like human figures 2½ feet high, were given at weddings to the bride as a token of fertility.

[92] *Tamales de trigo* are also seen in the large markets (Uruapan, Paracho), where they are customarily taken with atole. In Paracho they are called kasí-kurínda or kasipit-ukári.

243 December. Being more tolerant of poor soils and frost than either maize or wheat, it is customarily grown on the upper slopes. As it is believed that barley improves the soil, it is frequently rotated with maize. Much barley is sown on the high slopes around Cumachuén and Pichátaro, where yellow-brown soils and a short-growing season prevail. Oats are rarely cultivated; small fields were reported only in Pichátaro and Cumachuén.

244 *Other European field crops.*—Broadbeans, lentils, and chickpeas are cultivated chiefly around Lake Pátzcuaro and in the northern plateau pueblos, where they are often grown with maize. [262] Although small quantities are raised in the Sierra, these crops have little place in the native diet.

## HORTICULTURE

**The house-lot gardens (ekuáɹueca).**—These have been frequently mentioned above (pl. 7). In contrast to field agriculture, cultivation in the ekuáɹu is intensive; a large variety of plants (maize, beans, squash, vegetables, and fruits) are raised in each small lot; the soil is replenished by application of refuse from the dwelling and manure from the stable. The ekuáɹu is cultivated [462] mainly by the women and children of the household; the fields, in contrast, are worked by the men. In the gardens the women, always conservative, have retained the plants that are old in indigenous culture. Moreover, although some of the larger lots are plowed with oxen, most are cultivated with two of the present forms [412] of the tarákua: the wooden *pala* and the metal-bladed *asada*.

The principal garden crop is the *elote* maize, discussed above in connection with corn types. The cultivation of the old beans, such as kokóč, small patches of amaranth, and various squashes in the ekuáɹu, has also been mentioned. The women plant in the garden other indigenous vegetables, such as chayote (apúpu; *Sechium edule*);[illegible] *tomate* (tóma; *Physalis angulata*), which bears the small green husk-enclosed tomatoes; and, if water is available for irrigation, chiles of various types. The most significant vegetable grown in [262] the Tarascan house gardens, however, is the

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[illegible] The chayote bears annually small squashlike fruits, which are boiled and served with chile. In its third year the plant develops a large tuberous root, which is dug up and boiled ([illegible]) and is often ground on the metate to a flour, which is served as a gruel (sagú). The plant is reproduced by seed, or rather by planting the entire chayote fruit.

244 European cabbage (*col, repollo*), which the Indians
262 have thoroughly taken into their diet. Both
the leaf and head varieties are cultivated. Almost
every ekuáɹu in all Tarascan villages contains
a small patch of cabbages, which are used for
the famous čuɹípu, or meat and vegetable stew[94]
(pl. 5). A more common stew (*repollo*-šakuá) is
made of cabbage alone, flavored with red chile,
onion, and silantro. The leaf cabbage is the
244 usual variety found in the Sierra. It is rarely
planted by seed, but by replanting sprouts that
occur at the base of the stalk. The plant is
persistent, surviving the frosty Sierra winter;
leaves are stripped off until the stock often
reaches a meter in height. Other vegetables such
as lettuce, radishes, carrots, peas, and turnips,
although known in many parts of Tarasca since
early colonial times, are today little cultivated or
used in native cookery.

In addition to the food annuals, the ekuáɹu
247 contains various medicinal and ornamental plants,
249 mainly those of the Solanaceae, Fabaceae, and
Compositae. In a great number of the house
lots women plant a stalk or two of tobacco (*Nico-*
[276] *tiana rustica*, andúmukua), used not for smoking,
[278] but as medicine.[95] The *trompeta* or *floripondío*
(*Datura arborea*); *colorín* or p'oɹénɛʌ (*Erythrina
americana*); two euphorbias, *chupiri* (*E. calyculata*)
and *flor de pascua* (*E. pulcherrima*); and the Old
World *higuerilla* or castor bean (*Ricinus com-
munis*) are not uncommon in the house gardens
of the low country marginal to the Sierra. Euro-
pean Compositae, geraniums etc., make up most
of the ornamental plants cultivated around the
house.

*Fruit culture in the ekuáɹu.*—Practically every
245 house lot in most Tarascan villages contains a
few fruit trees, both Old World and native. A
definite climatic distribution of fruit types exists.
In the Sierra are found only the cold-tolerant
deciduous fruits such as the European peach,
apple, pear, quince, and the native crab apple
(*tejocote* or kaɹás) and cherry (*capulín* or šéngua).
In the lowlands around the Sierra, however, both
subtropical and cold-tolerant fruits are cultivated.
The former include the Old World citrus (limes,
oranges, lemons), figs, pomegranate (*granada de*

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[94] Čuɹípu is eaten principally during the maize harvest period and on religious holidays.

[95] For example, in Pichátaro tobacco is taken for fever and is chewed to cure toothache.

[p. 46-a]

245 *Castilla*), and the *granada de China*, and a great variety of native subtropical fruits such as the aguacate, chirimoya, guayaba, and zapote blanco. In the warmer sections of the *tierra templada* are found tropical fruits, the native mamey and zapote prieto, the Asiatic mango, Old World varieties of the banana, and the possibly native plantain.

245 177 197 The European fruits were brought into the Tarascan area early in the 16th century mainly by missionaries. Every mission, church, or convent had its small garden where the priest and Indian neophytes cared for fruit trees and vegetables. Consequently the new fruits spread rapidly among the Tarascan villages, and were soon fully accepted into the native economy. Both the Relaciones geográficas (Mus. Nac., leg. 102) and the Ponce Relación indicate the widespread cultivation of European fruits in the Tarascan area during the latter part of the 16th century. With fruit [242] cultivation the missionaries probably introduced the technique of grafting, e. g., the insertion of apple and pear cuttings into native *tejocote* to insure a hardy root system adapted to local soils and climate. Grafting is still practiced in most Tarascan villages.

245 Arboriculture among modern Tarascans consists of little more than a few fruit trees planted in the ekuáɹu or along hedgerows. Most trees are only semicultivated. Except for initial grafting [242] of apples and pears and the planting of shoots of other fruits, little care is taken of trees. Systematic pruning is not practiced, nor is any attempt made to control disease or insect pests.

245 438 Although in most pueblos fruit is grown chiefly for local consumption, the people of some towns specialize in raising certain fruits for export. The Sierra communities of Cumachuén and Pichátaro are the apple producers;[96] Cherán, Parangaricutiro (prior to the volcano), Tancítaro, and the *rancho* of Tenguecho specialize in pears.[97] In these towns the entire ekuáɹu of some households may be devoted to fruit trees, forming a small

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[439] [96] Many varieties of apples are marketed in these towns. The most popular is termed *camuesa*, a reddish fruit picked in August and September. Others, *chata*, *mariceras*, *chata de Serina* (a small crab apple), are harvested in October. In addition, the small red *moreliana* is grown in Pichátaro. Apples from Cumachuén and Pichátaro are carried by *arrieros* into the *tierra caliente* as far as Petatlán on the Pacific coast of Guerrero. They are also taken to the large markets of the plateau: Zamora, Pátzcuaro, Zacapu.

[97] In 1789 pears formed one of the main industries of Capacuaro, but are now relatively unimportant (AGN Historia, vol. 73, f. 336). See Beals, 1946, pp. 27-28, for description of pear picking.

[P. 46b]

245 orchard. In such cases trees are closely spaced and present an unkept appearance.

438 Many Tarascan pueblos in the lower and warmer areas bordering the Sierra specialize in subtropical fruits, and possibly served prehistorically as fruit supply centers for the Sierra towns. Since the development of modern transportation their produce is taken to many parts of Mexico. San Angel Zurumucapio is the avocado center of the Tarascan *tierra templada*,[98] Tingambato the chirimoya town, and the former Tarascan pueblos, Ziricuritiro and Acahuato, produce bananas, mangoes, mamey, citrus, etc. Tarascan Atapan and mestizo Tingüindín supply the western part of the Sierra with citrus, guayaba, and mangoes. As early as 1581 Atapan had become a citrus-growing center, and probably before the Conquest had produced avocados and chirimoyas for Sierra trade. The La Cañada towns have ever been the northern Tarascan fruit center. Today avocados form the main fruit speciality of Acachuén, Ichán-Tacuro, and Carapan; oranges are the chief export of Tanaquillo.[99] With the possible exception of Ihuatzio, which produces large quantities of avocado, there is no specialized fruit town in the Lake area, although the aggregate subtropical fruit production there is of importance in Sierra trade.

262 Fruits from the *tierra caliente* have long had a special significance among the Sierra Tarascans. Today at least two tropical fruits are eaten especially at religious fiestas, and special effort is made to obtain them for such occasions. Coconuts (kóko) in some Sierra pueblos are rarely eaten except during the Ramos and Easter holidays. [439] Formerly in Charapan 2 weeks before Easter a group composed of 15 men and boys from each barrio traveled down to the Tepalcatepec Basin to fetch coconuts for eating and coconut blossoms for church decorations. The band was ceremoniously seen off with the firing of rockets.[100] [389] Likewise, the large plantain (*plátano macho*) is eaten

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[98] The large avocado trees in the house lots of Zurumucapio completely hide the town. Two types of the fruit are grown, the black and white-skin varieties. Both are irrigated, and the fruit is harvested in April and May. Frequently coffee plants are grown under the shade of the avocado.

[99] Other fruits produced in La Cañada: Limes, guayaba, chirimoyas, figs, apricots, jusquiniquiles (burén), plums, mangoes, pomegranates, peaches, apples, zapote blanco, capulín, a few bananas.

[100] This custom has practically disappeared in the Sierra. Most coconuts and other tropical fruit are now obtained at the Ramos (Palm Sunday) fairs at Peribán, Zamora, Uruapan, and Pátzcuaro. In the Lake area during Easter festivities churches are often decorated with melons (sandías) from the Balsas.

[P. 47-a]. Sierra Pátzcuaro

262 raw (when aged or *pasado*) or, more recently, cooked on Easter, and sometimes on the village saint's day are distributed to all inhabitants at the end of the fiesta.[101] Moreover, cacao beans [439] were formerly an important trade article imported into the upland pueblos. In most households in 252 the Sierra the beans were roasted on the *comal* and then wet-ground on the metate. Mixed with piloncillo and cinnamon, the chocolate "dough" was made into small disks (2 in. diameter), called kʻékua. A chocolate drink is made by dissolving the kʻékua in hot water. A few storekeepers still make disks from ground chocolate purchased from mestizo wholesalers. Today chocolate is [609] taken principally on fiesta days, and is often served to visiting strangers. Other tropical fruits, such 262 as the common banana, mango, pineapple, mamey, chicozapote, zapote prieto, etc., are brought into the Sierra in season. They are eaten at all times and appear to have no ceremonial significance. Pineapple is used for a fermented beverage, *tepache*.

**Specialized truck gardening.**—This is a more 244 recent type of horticulture among the Tarascans. 312 They have adopted intensive commercial production of vegetables in only a few well-watered spots near large mestizo markets. The most notable truck gardening district has developed on the narrow stretches of lacustrine soil along the shores of Lake Pátzcuaro, where irrigation is practiced. Although water is carried in buckets to some of the smaller gardens (e. g., in Puácuaro), most of the vegetable plots are irrigated with the tʻapáratarákua, or *pala*, possibly a pre-Columbian invention.[102] This instrument consists of a wooden [406] spoonlike container fastened to a long pine pole, which, resting on a crosspiece, is used like a lever to scoop water from ditches or wells (fig. 4; pl. 7). Along the wide western shore of Pátzcuaro shallow ditch wells are dug down to the water level (5 to 6 ft. from the surface), from which water is scooped and distributed to vegetable plots by a system of small canals. Along the narrow shores of the Tarʼu-kʻéri Peninsula (where the water table is low) small canals have been constructed to permit lake water to flow into a ditch well, from which the water is lifted with the *pala* to high levels. In

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[101] The latter custom was reported from Cherapan and Patamban.

[102] The provenience of the *tʻapáratarákua* is not clear. Its mention has not been encountered in colonial documents; the Relación de Michoacán (p. 26), however, speaks of irrigated maize, presumably around Lake Pátzcuaro. Today the *tʻapáratarákua* is used also at Tarajero, in the basin of Zacapu.

[P. 47-b]

244 addition to the gardens of Lake Pátzcuaro,
312 commercial truck farming is also carried on in La Cañada and in Atapan, but on a smaller scale. There, fields are irrigated by diverting water from streams, a technique probably learned from Europeans.[103]

244 The native chile, *jitomate* (tom-kuaraki), *tomate*, and green beans (*ejotes*) and the Old World onion, garlic, cabbage, and lettuce are the principal products of the commercial gardens. Chile is the most significant of these, in terms of both acreage and market value. The fruit of this plant, a vitamin-rich gastrin, has always been important in the aboriginal diet. Two species of *Capsicum* are cultivated: *C. annuum*, the common herbaceous annual, and *C. fructescens*, the perennial shrub (*chile de árbol*). The latter is cultivated mainly in the house gardens. Both species re-
244 quire a long growing season and abundant water;
438 consequently chile cultivation is absent from the Sierra, but is found in the surrounding well-watered areas. Chile, therefore, has ever been a
[439] trade article between the Sierra and its borderlands.[104] Tarascan Puácuaro, Uricho, Arúcutin, and mestizo Tócuaro and Erongarícuaro are the main chile producers of the Lake. Most of the La Cañada pueblos raise some chile for export into the Sierra, but Etúcuaro, outside the valley, is the largest producer of that general district. All these areas raise *chile verde*, rather than the *chile seco* of the *tierra caliente* and Lake Cuitzeo district.[105] In both the Lake Pátzcuaro and La Cañada areas chile and tomatoes are first planted in the *almáciga*, or hotbed, in December.[106] Replanting in the gardens is done in March, and the vegetables are harvested from June through September.

## STOCK RAISING AND ANIMAL PRODUCTS

231 Modern Tarascans raise most of the European animal domesticates. Most households own a team of oxen for plowing and one or two burros for hauling wood and carrying produce to market.

[Text continues top of p. 49a—Analyst]

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[103] In several formerly Tarascan towns in the northern plateau area vegetables are cultivated on a commercial scale. The truck farming around Ziricícuaro, southeast of Lake Cuitzeo, was significant during the latter part of the 18th century. Tarascan horticulturists of this pueblo carried vegetable produce as far as the Toluca market (AGN Historia, vol. 73, f. 255).

[104] The Tarascan name for Chilchota is *tirípu*, which means green chile. The Sierra people have always thought of La Cañada as a producer of chile, as well as other vegetables and fruits.

[105] The chief varieties of *C. annuum* in the Lake district are *lumbrillo* (*verde*), *amarillo*, and *relleno* (*bell chile*). *Chile seco* from the *tierra caliente* reaches the Sierra through the markets at Uruapan, Pátzcuaro, and Los Reyes.

[106] The *almáciga* is likely a European introduction, although it was pre-Columbi[illegible] *chinampa* district in the Valley of Mexico.

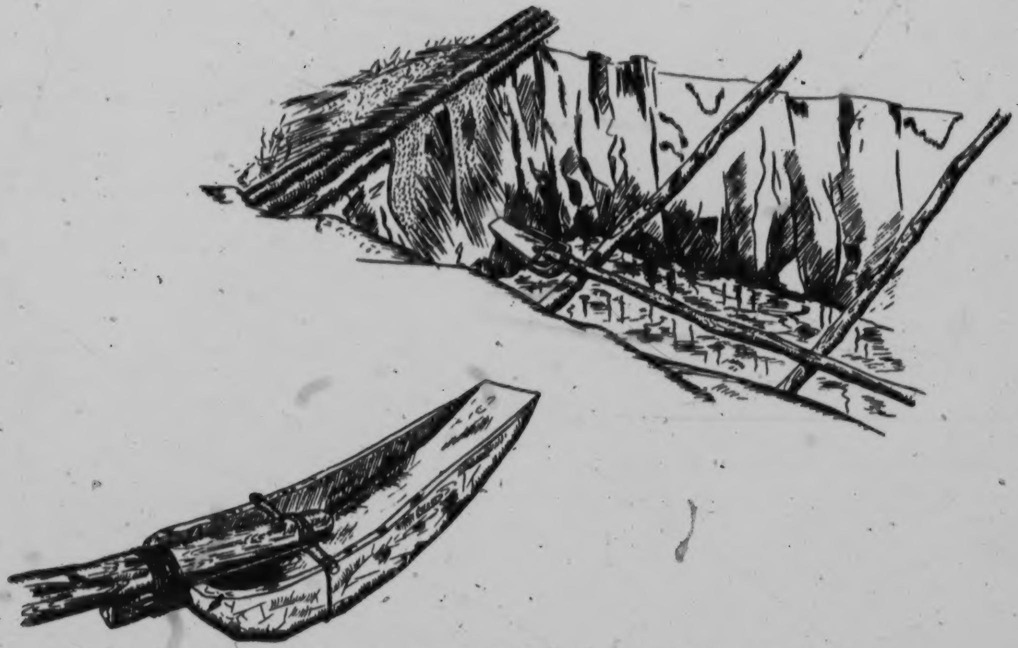

FIGURE 4.—The t'apáratárakua irrigation device. The pole to which the wooden spoon is attached is approximately 12 feet long.

239 In spite of unfavorable environment for stock raising, many families possess small herds (10–25 head) of cattle, which roam the Sierra forests.[107] During the latter part of the dry season some cattle die of starvation, and the springs and wells barely afford sufficient water for existing herds. The fatter animals are occasionally sold to the local butcher or home-killed for meat. Only the more wealthy have riding horses, and few except *arrieros* possess mules. When in use oxen and burros are often stabled in the house lot. All livestock is turned into the fields after harvest to graze on stubble and to fertilize the land. The small animals, such as sheep and pigs (*ganado menor*) are common throughout present Tarasca.[108] In almost every village a few families own sheep, flocks ranging in size from 50 to 1,000 head. The greatest number of flocks are found around the higher mountains of the Sierra, such as Tancítaro,[109] Patamban, and Quinceo, where summer pastures (bunchgrass) are abundant near the summits. In [242] winter, flocks are grazed in harvested cornfields, for this is a recognized method of soil fertilization. Most of the inhabitants of the *ranchos* around Cerro de Patamban are shepherd-farmers, at least half of their time being devoted to sheep raising. During the summer months boys and girls are

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177 [107] Few data exist concerning the introduction of cattle into the Sierra. The original land title of Pamatácuaro, dated June 1532, mentions the possession of European domestic animals by the Indians of that village. "*Tienen los naturales como pobladores las preheminencias necessarias de pueblo, Inglecia, campanas sonoras, cementherio: chrias de todas claçes de ganados, Bacas de vientre, Bueyes, asnos, ovejas y bestias mulares y caballares . . .*" Again, from the same document: "*. . . los animales y ganados son sanos y de competente tamaño . . .*" These data were taken from a certified copy (1937) of the original document; the latter is reported to be in the *jefatura* of Pamatácuaro. If the document is correct, European animals were taken into the native culture at an extremely early date. The Ponce Relación (1872, vol. 2, p. 123) mentions herds belonging to natives pasturing on the slopes of Cerro de Tancítaro and watering at the lake on its summit in 1584. Around 1700 the people of Cheranátzicurin possessed a *sitio de ganado mayor* (pasture for large animals such as horses and cattle) near the village (AGN Tierras, vol. 867, exped. 8). In the northern plateau and *tierra caliente* regions, where colonial cattle *estancias* were numerous, many Indians quickly became *vaqueros*, but probably few acquired their own herds.

[108] Tarascans quickly adopted the sheep. By 1580 many Indians around the shores of Lake Cuitzeo possessed flocks numbering from 300 to 400 head. "*. . . crían sus carneros con tan buen orden y concierto como en España . . .*" (Mus. Nac., leg. 102, Rel. de Cuitzeo). A great number of Indians living near the northern plateau pastures were forced to tend flocks of Spanish *encomenderos*. The Lake and Sierra Tarascans also likely acquired sheep at an early date. In many parts of Mexico the Indians rapidly took to sheep raising soon after the Spaniards introduced the animal early in the 16th century. During the colonial period Indians were the chief sheep raisers in New Spain, either as hired shepherds or as owners of flocks. Possibly the annual or semiannual wool clip and the fact that the smaller animals are more easily herded than cattle, prompted the natives to adapt themselves readily to sheep raising.

[109] Most of the flocks on Tancítaro and other areas adjacent to Parícutin were destroyed by heavy ash fall during the spring and summer of 1943. Formerly, some Tarascans in that area owned flocks as large as 5,000 or 6,000 head. One man in Nurío is reported to have had 20,000.

233 [883] During the summer months boys and girls are the full-time shepherds, driving herds up the mountain slope each morning and down to the folds near the house at evening. The elders perform the semiannual shearing and often tend the flocks in the cornfields during the winter. Professional shepherds are sometimes hired by sheep owners to care for their flocks.

The sheep of the Tarascans are small, scrawny animals, descendants of the 16th-century Spanish breeds. In a given flock about half the animals are black, the rest white (pl. 7). Often a few goats graze with the flock. The Indians are usually financially unable to improve the breed with new blood; in only one case did the writer observe a merino ram. 236 The Tarascans raise sheep mainly for wool. The *rancheros* around Cerro de Patamban shear their animals with hand clippers every 6 months. Some wool is obtained also by the girl shepherds, who pluck from the backs of sheep while the animals are grazing; as she plucks, the girl spins the wool on a whorl spindle, completing a ball of yarn as large as the fist at the end of day. In many villages local wool is used for weaving, many weavers possessing their own flocks. Otherwise the wool clip is sold to people from other villages or to mestizo wholesale buyers.

231 177 The hog was the first European animal domesticate that the Spaniards brought into the Tarascan area in quantity, and was possibly one of the first of the new animals adopted into Indian culture. As early as 1525 Spaniards were raising large droves of hogs in the vicinity of Pátzcuaro in order to supply food to placer operations in the Balsas (Millares Carlo and Mantecón, 1945, p. 32).[119] Indians were used as swineherds. Throughout the colonial period large numbers of hogs were fed in the marsh areas north of the Sierra and droves were periodically driven to Toluca and the valley of Mexico (Paso y Troncoso, 1905, vol. 1, p. 180). 231 Today the hog is common in every Tarascan village. Practically every household owns two or three animals, which serve as scavengers, running the streets by day; enough maize and scraps are fed the animals to induce them to return at night to the proper pen in the

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[119] The hog appears to have been the first Old World animal raised on a large scale in New Spain. Moreover, hog culture was intimately connected with gold placering in Oaxaca, Guerrero, and Michoacán ([illegible]). Droves were driven along with the shifting placer camps, the animals feeding on fallen tropical fruits (e. g. the *ciruela*), roots, and wild tubers in the *tierra caliente*. "*Carne de puerco*" was the chief "energy" food given the Indian labor gangs.

231 house lot. Droves of pigs are never mast-fed in the forest. Hogs are fattened on corn and sold; as pork is well liked, they are often killed for food and for lard, now indispensable in European-modified Indian cookery.

Other animal domesticates include fowls and bees. The turkey (kuɹúka),[111] the only native domesticated fowl in the area, is more common in mestizo towns than in Tarascan villages. The European chicken (ȼíkata,)[112] however, is ubiquitous; practically every Indian household has a flock of five or six. A single breed, probably descendent from the Spanish fowls introduced early in the 16th century, predominates.[113] Improved breeds have penetrated only into large mestizo towns on the edge of the indigenous area. Several families in every Tarascan pueblo keep a few hives of European bees in the house lot. Hives consist of rows of small wooden rectangular boxes placed on benches (pl. 7). In some Sierra villages (e. g. Capacuaro) native bees hive in sections of logs hung on the outside wall of the [263] house. Both honey (for sweetening) and wax [237] (for religious candles) are extracted from the hives in November or December.

**Animal foods in Tarascan diet.**—Tarascans eat 262 meat whenever it is available and can be afforded. 252 Chunks of boiled beef are one of the chief ingredients of čuɹipu. This dish is also made of the heart, liver, intestines, and lungs. Other beef dishes prepared in most Tarascan pueblos are: a stew, or atápakua, thickened with *mole;* uiríkata, or meat broiled over charcoal or on the *comal;* various cuts fried in the *casuela; menudo,* or stomach lining boiled and served with ground chile; dried salted meat (*cecina*); steamed beef heads (including tongue and brains), called *virría* or *babaqua.*[114]

[235] Neither cow nor goat milk is popular among Tarascans. Some milk cows are kept in the larger villages to supply the pregnant and the sick. Little cheese is made locally, most being brought in from the *tierra caliente.*

Although well liked by most Tarascans, mutton

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[111] The word kuɹúka is apparently onomatopoeic; ȼíkata-ambás or "good chicken," is also used as a name for turkey.

[112] The word "ȼíkata" is Tarascan for a wild grouse, and was evidently applied to the chicken soon after its introduction.

[113] Hens are small, dull brown, often speckled with yellow and black; cocks are reddish brown with highly colored tail, wing, and neck feathers.

[114] Some of the above Tarascan words are also applied to stews and roasts of deer meat. With the possible exception of čuɹipu, uiríkata, and atápakua, all meat dishes prepared by modern Tarascans are of Spanish origin.

262 252 is eaten only on Sundays or on fiesta days by those who can afford it. On festive occasions, such as weddings, a whole mutton is stuffed with cleaned entrails and head and roasted in a large oven. (The roast is called *tatemado*, or uiríkata.) On less prominent occasions pieces of mutton are often cooked with vegetables to make a kind of čurípu.

Pork is always eaten fresh; cured pork, such as ham, bacon, and sausage—all old Spanish meats—, has no place in modern Tarascan diet. Pieces of fresh pork are fried on the *comal*, or boiled with vegetables. A popular pork dish, especially in the Sierra, is *chicharrones* (cracklings), which consist of pieces of fresh pig skin well-cooked in a large copper caldron.[115] *Carnitas*, pieces of meat and fat, including spareribs, side meat, leg, etc., are also cooked in the caldron in many pueblos, and are commonly served in the markets of the large mestizo towns nearby.

## FOOD-GATHERING ACTIVITIES

222 262 Tarascan women and children gather various wild herbs, fungi, and fruit to supplement agricultural products. Among these the most important are the annual greens, or šakuá,[116] collected during the rains from June through September. They are usually found in disturbed ground, e. g. within and on the edges of wheat or maize fields. The women in some Sierra pueblos recognize more than 15 varieties of šakuá that are habitually gathered.[117] These are boiled with chile and [252] salt to make atápakua. Although eaten in all modern Tarascan villages, such greens are of greater importance in the Sierra, where the garden vegetables common in the Lake and La Cañada areas are infrequently cultivated.

Mushrooms (terékueča) are collected in all Tarascan towns, and, like the annual greens, appear only in the rainy season. They are found in the fields, in the forest growing under decaying logs,

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[115] In the spring of 1946 a *chicharrón* cooking was observed in Pamatácuaro. After killing a hog the local butchers or others set up a caldron in the plaza to cook the skin. By the time the cracklings were well done, a large group of villagers had gathered to buy them at a few centavos each. The lard so rendered was sold to one of the local stores. The cooking of *chicharrones* is also common in many mestizo towns in central and northern Mexico.

[116] Šakuá is the Tarascan equivalent of the Nahuatl "quiliti," which has been hispanicized to *quelite*, the general term now used in Mexico for any kind of wild annual used for greens.

[117] Unfortunately, the Sierra was visited during the dry season, and consequently specimens of šakuá plants could not be collected for botanical classification. Verdolaga (*Portulaca oleracea*) and tender amaranth shoots, however, are common šakuá varieties.

222 and even in sheltered spots in the village streets. 262 Again, collecting is done by women and children, though men may bring home a mess of mushrooms found while cutting wood. Eight to ten edible varieties are known in most towns. Children are trained early to recognize the poisonous kinds, called uańč-terékua (ghost mushroom). Terékueča are prepared by boiling and then frying [252] in lard; they are also roasted with salt on the *comal* or over live coals; sometimes they are boiled and mixed with chile sauce. A *tamal* nákatamal-terékua) is often filled with boiled mushrooms. Aside from mushrooms, the fungus growth on maize ears is likewise called terékua (the *cuitlacoche* (*Ustilago maydis*) of the Aztecs), and is similarly prepared and eaten.

In the Sierra acid fruits, particularly berries, are other food items collected. The fruit of the native blackberry bush (*zarzamora*, ¢‘tún), which grows best in disturbed ground along hedgerows and on edges of fields, is gathered in May and June. The berries are eaten fresh with salt and are used to flavor atole (*atole de zarzamora*, ¢‘tún-kamáta). Other fruits commonly gathered include piníki, an orange-colored berry often carried to mestizo markets; *tejocote* and *capulín*, both gathered wild or semicultivated in hedgerows; wild grapes; the cherry tomato (šapíndikua), which grows along the edges of cultivated fields.

The buds (šamáš) of a wild *mezcal* type of agave is another food item commonly gathered in the Tarascan area and in most parts of Central Mexico. The buds and lower fleshy ends of the 262 leaves of the plant are roasted in a hole about 1 252 meter deep and 1 to 2 meters across, which is usually dug on the forested slopes where the wild agave is available. A fire is built in the hole, and after it has died down somewhat rocks are placed on top. When the stones become hot, the agave is placed in the hole and covered with maguey leaves and earth. After 3 days the cooked agave is taken out and carried to various markets where it is sliced and sold. Roasted agave is often termed *mezcal* (siuáta), but it must be distinguished from the distilled liquor (s‘Áku) of the same name. The former is rich in starch and is possibly one of the more ancient foods of Mexico.

Aside from food plants, the coarse roots of 222 zacatán grass (*Muhlenbergia macroura*) are collected by men throughout the Sierra. Called *raíz de paja* or *raíz de zacatón*, the dried roots are sold in

222 mestizo towns nearby for the manufacture of scrubbing brushes. This activity is not peculiar to Tarascans, for it is carried on by both mestizos and Indians in high altitudes of the Mesa Central where the grass grows in abundance.

Before the eruption of Parícutin in 1943, honey 263 gathering was an important collecting activity in 222 the Sierra. The heavy fall of volcanic ash killed or drove away all wild bees in the area, terminating the ancient trade of the *panaleros*, or honey gatherers. Formerly there were 15 *panaleros* in Urapicho, and several in Cherán and Tanaco. In the spring of 1946 it was rumored in some pueblos farthest from the volcano that a few swarms of bees were returning. (See Beals, 1946, pp. 13–14, for a description of honey collecting in the Sierra.)

## HUNTING ACTIVITIES

In pre-Conquest times hunting formed a signif- 224 icant part of the food quest among the Tarascans. Deer, rabbit, and grouse were hunted in the Sierra, while migratory waterfowl, chiefly ducks, were taken in the Lake area (Relación de Michoacán, p. 15). Today only duck hunting on Lake Pátzcuaro still has economic importance, and there it is limited chiefly to fishers—the islanders and some *rancheros* on the Tazíu-k'eri Peninsula. Nine varieties of migratory ducks (principally of the genera *Nyroca*, *Mareca*, and *Nettion*) are recognized by the fishermen. Customarily bird hunting starts on the Día de los Muertos fiestas (October 31 and November 1), when as many as 100 ducks are killed by a single hunter, and continues until the departure of the flocks in late March. The p'atámu, or spear propelled with the 411 throwing stick (tapáki, or the Nahuatl *atlatl*), is still employed by many duck hunters. The spear, with a *carrizo* handle 3 m. long, carries 3 points, called the *fisga* (k'enčéta), each 7 cm. in length (fig. 5). Old flintlocks (*carabinas de chispas*) are also used by the Urandén islanders, but many modern hunters from Janitzio possess modern shotguns. Ducks are eaten in the Lake pueblos and many are sold in Pátzcuaro. Waterfowl are hunted by Tarascans likewise in the Zacapu Basin.

224 [517] In the Sierra, hunting is looked upon as a pastime by most modern Indians. Men and boys often hunt deer, squirrels, and rabbits with flintlocks and some modern rifles. Game, however, is largely depleted in the Sierra. Beals

[TEXT CONTINUES BOTTOM OF P. 52b--ANALYST]

[P. 52-a]

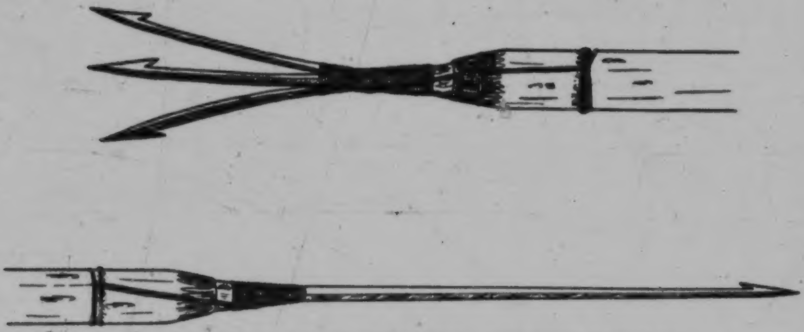

Figure 5.—The fish spear (above) and *fisga* (below). Approximately ½ natural size.

[P. 52-b] Pátzcuaro

224 (1946, p. 19) mentions the use of pit traps and snares in Cherán.

## FISHING

A large part of pre-Conquest Tarasca was 226 inhabited by fishers, most of whom were part-time farmers.[118] There were two important fishing areas: (1) the northern plateau region, dotted with lakes and marshes, and (2) the central lakes, Pátzcuaro and Zirahuén. Fishing was also practiced in the shallow lagoons in the Cotija graben west of the Sierra and in the Tepalcatepec and Balsas Rivers in the *tierra caliente*. In the above-named areas fishing continued unchanged throughout most of the colonial period, but during the last 150 years it has declined mainly in the northern and western sections, owing to desiccation and draining of marshes.[119] In Lake Pátzcuaro, fishing has been declining since the mid-18th century. By 1789 all the inhabitants of the south-shore pueblos had ceased to fish (AGN Historia, vol. 73, ff. 292–302v), and today Lake Pátzcuaro fishers are limited mainly to the islands and a few small *ranchos* on the Tarú-k'éri Peninsula. Only ves-

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[118] The Nahuatl name for the Tarascan area (particularly the section around the central lakes) was Mechuacán, meaning the land of the fishers.

[119] The desiccated areas where fishing was once significant included the basins of Zacapu, the Tarimbaro lowland north of Morelia, the Tangancícuaro Basin, the lowlands southeast of Lake Chapala, and the chain of lakes (Guadalupe, San Juanico, Magdalena, Tacátzcuaro) in the Cotija graben. Some fishing is still practiced by mestizos in Lakes Yuriria and Cuitzeo, although the waters of both are constantly receding, and the latter occasionally dries up completely. The western portion of Lake Chapala, formerly Tarascan territory, is still fished. There are some nine mestizo fishermen at Zirahuén, and *carpa* are still caught in the *tierra caliente* streams. This fish is dried and carried to the Sierra towns for consumption on fast days.

[P. 52-C] Pátzcuaro

226 tiges remain in some of the mainland towns, where a few farmers fish part-time along the shore to supply local demand (map 19).

**The fish resource.**—The native fishes of Lake
136 Pátzcuaro are common to most lakes and streams of the western part of the Mesa Central. Most of the commercially important species belong to the genus *Chirostoma* (Atherinidae), which vary in length from 2 to 12 inches. *C. estor* is the famed *pescado blanco* (kurúča urápiti) of Pátzcuaro; *C. bartoni*, the *charal* or č‘arári, is a tiny species that is sun-dried and sold over a wide area; *C. grandocule* is called k‘uerépu, although this term is usually applied to the young of other species. Other genera include small fish, notably akúmaɹa, or *sardina* (*Algansea lacustris*), čéua (*Allophorus robustus*), and t‘íru, which includes at least four genera of the Goodeidae family (*Goodea luitpoldii*, *Neoophorus diazi diazi*, *Allotoca vivipara*, *Skiffia lermae*). Around 1930 a black bass (*Micropterus* (*Huro*) *salmoides*), called *trucha* or *carpa*, native to eastern North American streams, was introduced into Lake Pátzcuaro presumably to increase a failing fish reserve. The *trucha*, however, upset an established biotic equilibrium by feeding on the small littoral fish, almost exterminating the t‘íru and diminishing the stock of čéua and č‘arári. In addition to fish, freshwater shrimp (šapitu) and frogs (kuanásʌ, *Rana pipens*) inhabit the lake and are often caught and eaten.[139]

[TEXT CONTINUES TOP OF P. 549]

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[139] A large literature exists on the fish resources of Lake Pátzcuaro. The more important works are Ancona et al. (1940), Osorio Tafall (1944), and De Buen (1943, 1944).

[P. 53]

Pátzcuaro

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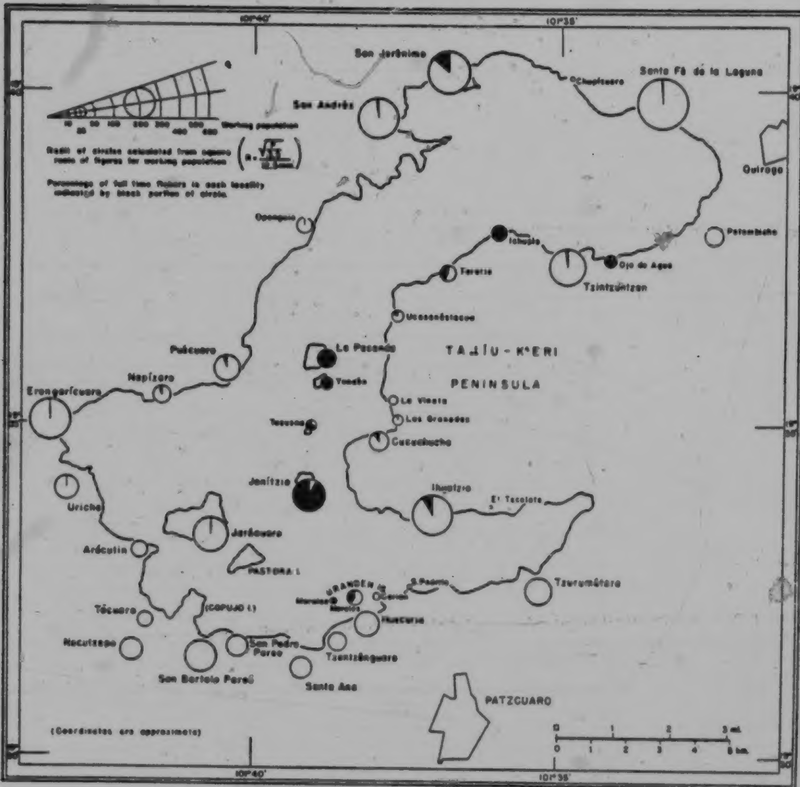
101°40'
101°35'
San Jerónimo
Chupícuaro
Santa Fé de la Laguna
San Andrés
Quiroga
Working population
10
20
50
100
200
300
400
500
600
Radii of circles calculated from square roots of figures for working population
Percentage of full time fishers in each locality indicated by black portion of circle.
Opongio
Ichupio
Patambicho
Tarerio
Ojo de Agua
Tzintzuntzan
Ucasanástacua
La Pacanda
TAЯÍU-K'ERI
PENINSULA
Puácuaro
Yunuén
Napízaro
Erongarícuaro
La Vieata
Tecuena
Los Granadas
Cucuchucho
Janitzio
Uricho
Ihuatzio
El Tecolote
Jarácuaro
Arócutin
PASTORA I.
Tzurumútaro
GRANDE I.
S. Pedrito
Tócuaro
(COPUJO I.)
Huecorio
Nocutzepo
San Pedro Pareo
Tzentzénguaro
San Bartolo Pareo
Santa Ana
PATZCUARO
(Coordinates are approximate)
0
1
2
3 mi.
0
1
2
3
4
5 km.

MAP 19.—Distribution of fishers around Lake Pátzcuaro, 1940. Data from official census, 1940.

227 **Fishing techniques and associated tools.**—Fishing with native Tarascan nets predominates in Lakes Pátzcuaro and Zirahuén. Both the net and the hook were employed in pre-Conquest times,[121] but at present the latter is of secondary importance. The large *chinchorros* (uarúka) and the smaller čerémekuas are the only nets used today. The former is a seine, employed for catching *pescado blanco* and *trucha* in midlake, while the latter, a gill net with a fine mesh, is placed along shore to trap the small č'arári and k'uerépu[122] (pl. 8). Prior to the introduction of the *trucha* the picturesque *mariposa* or butterfly nets (k'orueča) were commonly employed for catching t'íru. Owing to the near extinction of this fish, these nets are no longer seen, except in Janitzio, where they are displayed to tourists. The hand net (*cuchara*, uirípu, ¢iúru) has likewise practically disappeared. All nets used by the Pátzcuaro fisherman are home-woven.

Other fishing tools include the spear (*arpón*, atárakua), now used to kill *trucha* in shallow water, and the hook (*anzuelo*, jupíkata-tárakua).[123] Shore traps are occasionally used by a few fishers of Uricho and Puácuaro. Fish poisons are not employed. To improve habitat conditions of open-water fish, such as *pescado blanco*, portions of the lake bottom are often cleared of aquatic grasses (*zacate*, pu¢úrini) with the uarómatárakua, a pole 3 m. long with a sickle attached to the end.

501 An indispensible fishing tool and means of water transport is the Tarascan canoe, a flat-bottom dugout hewn from a pine or fir log. Owing to the

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226 [121] According to the Relación de Michoacán, Tarascan officials oversaw the net fishermen and those who fished with hooks (p. 16). Moreover, ". . . *de noche pescan con red y de día con anzuelo*" (p. 149).

[122] The *chinchorro* often measures 100 to 150 m. long and 8 m. wide. In the center is a pocket (*bolsa*) of fine mesh. Four people are necessary to handle the net in midlake, and it is usually operated from one boat. The net is manipulated by ropes (an¢itatárakuéa), 50 to 60 m. long attached to its two ends. Once the net is cast, it is formed in a semicircle and slowly pulled forward and upward, while the catch settles into the *bolsa*. The čerémekua is usually 6 to 8 m. long and 40 cm. wide. This net is used somewhat like a trap. It is fastened to poles in shallow water near the shore and left for 2 or 3 hours. When lifted, the net usually contains several small littoral fish, their heads caught in the fine mesh. This type of čerémekua can be operated by one person. A longer čerémekua (often 100 m. in length) with a coarser mesh is sometimes used to catch *pescado blanco* in deep water offshore. Like the smaller variety, it is operated by one person, who attaches the top of the net to log floats and one end to his canoe. The net and boat are permitted to drift in midlake usually through the night, while the attendant gathers in the trapped fish from time to time.

[123] The atárakua is composed of a stalk of *carrizo* 4 m. long, to the end of which is attached a long barbed-iron point (60 cm. long). The spear is hurled either above or beneath the water. Regarding the use of the *anzuelo*, the cord supporting the hook is usually attached to a piece of *carrizo* or *otate*, 1 m. long, a series of which is permitted to float on the water. A strike is indicated by the tilting of the stick, which is hurriedly picked up by the boatman.

501 drying up of lakes in the northern and western sections of Tarasca, the distribution of the dugout has decreased in area during the last 100 years. At the present time the Tarascan boat is used on Lakes Pátzcuaro, Zirahuén, Cuitzeo, and Chapala; two old dugouts on the small pond at Tarejero represent the remnants of the once extensive canoe traffic in the Zacapu lagoon.[194] Most of the Lake [438] Pátzcuaro boats are made in the Sierra settlements of Cumachuén, Capacuaro, and in the highlands to the south, mainly around the *rancho* of Santa Juana. The boats are dragged to the lake shore, where they sell for 100 to more than 600 pesos each. They are said to last for 3 to 5 years before becoming waterlogged. Two sizes of boats are seen on Lake Pátzcuaro—the small ičáruta for two to four persons, used for shore fishing, and the larger tepári, which carries from four to eight individuals and is employed in midlake fishing and for transport.[195] The smaller boat is paddled with the *pala* or šótakua, which has a round blade of pine (25 × 28 cm.) attached to a handle of oak or *tejocote* varying in length from 30 cm. (for children) to over 2 m. The larger canoes are both paddled and rowed. Sierra folk from Cumachuén and Capacuaro manufacture oars and paddles, which they market in Erongarícuaro and Pátzcuaro.

226 **Fishing methods.**—In most parts of the lake, fishing is done in the early morning hours between 5 and 10 o'clock. Fishing is seasonal, most activity occurring during the dry season (November to May). *Chinchorreros* usually operate in groups of four; often blood relations, the group divides the catch equally. An owner of a net and boat often hires *peones* to help with the *chinchorro*, paying wages or dividing the catch. The wife and children occasionally help set the čerémekua along the shore, and often women aid with the *chinchorro*. Midlake fishing is open to all inhabitants of the Lake area who pay a federal license of 1.50 pesos annually. By custom, however, the people of a particular settlement have exclusive fishing rights along the shore of their lands; those from other pueblos may not fish the shores of

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[194] As late as 1872 heavy canoe traffic is described between Tarejero and Zacapu (Pérez Hernández, 1872, p. 119). Late in the 16th century small reed *balsas* were used on Lake Chapala (Ponce Relacion, vol. 2, pp. 18–20).

[195] Measurements of the dugouts: The ičáruta has a length of 2.5 m. to 6.5 m., width of 60 cm., and depth of 40 cm.; the tepári ranges from 6.5 to 11 m. long, 1 m. wide, and 50 cm. deep.

226 another without permission from the authorities of the latter.

**Fish preparation.**—*Pescado blanco*, *trucha*, and 252 akúmaɹa are usually taken to market fresh, although the latter is sometimes fried on the *comal* before being sold. The tiny k'uerépu and č'arári, however, are invariably sun-dried, the catch being spread on a petate, which is placed near the door of the dwelling where it can be easily watched [439] (pl. 11). Since pre-Conquest days dried č'arári has been one of the main exports of the Tarascan lakes. It was distributed into the *tierra caliente*, the Sierra, and as far east as Toluca.

## LUMBERING ACTIVITIES

313 The Tarascans, possibly more than any other aboriginal group of Mexico, have been exploiters of forest products since pre-Columbian times. During the Empire period one of the important officials of the *caltzontzin* at Tzintzuntzan was in charge of "the keepers of the forests," who cut beams and made planks for public, and probably private, use.[136] Not only were large beams and logs used in the construction of temples, but also in the building of forts against Aztec raids. During the colonial period the pine forests on the northern flanks of the Sierra de Ozumatlán were heavily exploited by Tarascan woodmen for beams, planks, and shakes for the Guanajauto and Zacatecas mining districts.[137]

Much of the timber resource of northern Michoacán was depleted by the end of the 18th century. Relatively untouched by colonial exploitation, the pine and fir forests of the Sierra de los Tarascos, although constantly diminishing, have remained the principal source of timber for the indigenous population. There are few contemporary Sierra Tarascan men who cannot handle an ax or lumber saw. When the maize fields do not demand their attention, the family head and his sons are usually in the forest cutting timber or gathering resin. The Sierra Indian is consequently both a farmer and a lumberjack. Some are professional woodsmen, who live in the village but seldom engage in agriculture. Little lumber-

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[136] Relacion de Michoacán, p. 17; ". . . *diputado sobre los que guardaban los montes que tenían cargo de cortar vigas y hacer tablas y otra madera de los montes . . .*"

[137] This exploitation began immediately after the Guanajuato mines were opened ca. 1554, and extended into the post-colonial period. After the exhaustion of the local wood supply, Zacatecas began to draw on the northern Michoacán lumber reserves during the first part of the 17th century (Basalenque, 1886, vol. 1, p. 315).

[P. 55b] Sierra

313 ing is carried on outside the Sierra. Some beams
and planks are cut by the people of Zipiajo and
Teremendo, who have large tracts of forest on
the slopes of El Zirate, and some farmers of the
Lake area and La Cañada cut small amounts of
lumber for home use.

Beals' discussion (1946, pp. 15–19) of legal
313 cutting rights, lumber products, and lumber
423 tools for Cherán can be applied to most of the
present Sierra pueblos; therefore, only a summary
will be given here. As mentioned above, all
Sierra pueblos possess varying amounts of forest
313 land held as common property. Since the late
[656] 1930's the Federal Government has attempted
to control exploitation by placing all large forest
areas under national domain, by encouraging the
organization of local lumbering cooperatives, and
by periodically inspecting lumbering activities.
[651] In most pueblos the Federal tax on lumber products
is passed on to the individual woodsmen,
who pay the town council a given amount for
cutting rights. In other towns lumber cooperatives
[474] have been formed to pay the tax, each
member contributing dues and having sole cutting
rights in the village forest lands.

Although much lumber is for local use (house
[439] construction, fences, acqueducts, watering troughs,
shakes, etc.), most is cut for the outside market.
Raw logs, beams (*vigas*), planks (*vigetas*, *tablas*),
and railroad ties of pine and fir are cut and prepared
[493] for lumber contractors, whose heavy trucks
visit the larger villages during the dry season to
[492] haul the products to the nearest railhead. Woodcutters
of the remote pueblos drag beams and
planks to market with the aid of burros and mules.
[497] Los Reyes, Tingüindín, Tangamandapio, and
Zamora handle the forest products from the
western part of the Sierra, while Uruapan, Zacapu,
Ajuno Station, and Pátzcuaro serve as lumber
points for the eastern section. Formerly a significant
forest industry, shake making (performed
by skilled specialists) is slowly declining because
of the increasing use of tile roofing.[128] Turpentine
314 is no longer distilled locally. (See Beals, 1946,
p. 18, for illustration of Tarascan still.) Rather,
the resin (*resina*) is gathered in 5-gallon tins and
taken to the village, where they are periodically

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[128] Although in some pueblos (Pamatácuaro and ranches, Angahuan, Capacuaro) shakes are still made for export to Uruapan, most are used locally. During colonial times and even in the last century large quantities of shakes were shipped from the Sierra to the northern mines, where they were the principal roofing material.

314 picked up by trucks from turpentine distilleries
in Uruapan and Morelia. Charcoal is a minor
commercial forest product made by Tarascans
living near mestizo towns. The latter comprise
[372] the principal markets for charcoal, which has
never entered Tarascan culture.[129] Other minor
forest products consist of *ocote* splinters, used
for primitive interior illumination;[130] softwoods
313 (madroño, jaboncillo, aile, etc.) for lathe work;
pine and fir for cabinet work; etc.

Within the last 50 years the commercial sawmill has penetrated into the Sierra. Lumber companies purchase cutting rights of standing timber from the pueblos and set up a steam- or (when near a power line) electric-powered saw in the midst of the forest.[131] When the suitable timber has been depleted (under Federal inspection), the mill closes down, and the remnant of the forest reverts to the pueblo. Although most
[464] companies bring in mestizo labor, many Tarascans
from villages nearby obtain seasonal work in the sawmills, thereby supplementing their usually low income. Because of their ephemeral character, the number of mills in the area varies. In 1940 there were five mills in the Sierra proper; in 1946 the number had decreased to three.

During the last 100 years cutting has exceeded natural timber growth in the Sierra. Clearing of new plowland to sustain increased population and commercial lumbering have been the major factors of forest depletion. Moreover, disease has recently destroyed acres of pine in the vicinity of Tarecuato, and volcanic ash has laid waste the forest within a 3-mile radius of Parícutin. Lumbering even by the Tarascan woodsmen is often wasteful. Large trees are sometimes cut and left unattended for years until rot renders the wood useless.[132] Improper tapping for resin and testing for shakes often kill many trees. The sawmills, operating on a much larger scale than the native lumbermen, are even more destructive, and in former years they depleted large sections of Sierra forest. Approximately 50 years ago the timberland in the eastern part of the Sierra east

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[129] The main charcoal-producing towns in the area are San Lorenzo (Uruapan market), Opopeo and Cuanajo (Pátzcuaro market).

[130] The *rancheros* around Pamatácuaro gather much ocote, which the women market in the large mestizo towns bordering the Sierra.

[131] In 1944 the pueblo of San Felipe sold its forest to an Uruapan company for two million pesos. The proceeds were deposited in an Uruapan bank, where they remain communal property.

[132] Such wasteful exploitation was much in evidence in the forest lands of Pamatácuaro on the southern slope of Cerro de Patamban.

313 of Nahuatzen, Sevina, and Cumachuén was almost completely stripped by the mills. Today in this area, barren, windswept sheep pastures, supporting occasional remnant clumps of pine, indicate the extent of forest destruction (pl. 8). Throughout the Sierra there is probably not a piece of virgin timber, so long and thorough has been lumber exploitation.

## HANDICRAFTS

Among most people lacking modern transporta-
438 tion facilities and mass production techniques,
472 cottage industries, often termed "native crafts,"
are characteristic of the local economy. Owing
463 to the presence of particular raw materials nearby and/or to traditional skills, people of one village often tend to specialize in one or more crafts. Cottage industry and village specialization are prevalent in most of indigenous and even mestizo Mexico. It is and has been particularly so among the Tarascans, whom the early Spanish chroniclers described as a skilled and clever people (Beaumont, 1874, vol. 2, p. 165). Moreover, progressive exhaustion of originally poor soils and population increase have forced many farmers of the Sierra to turn to crafts for additional income. Today five general handicrafts (ceramics, textiles, woodwork, leathercraft, and metalwork) are practiced and over 30 types of articles made among 54 Tarascan towns and *ranchos* (map 20). Only 10 Tarascan-speaking pueblos lack a cottage industry. In 26 pueblos at least 25 percent of the "working" population[133] practice various crafts. Some villages specialize in only one industry. For example, over 80 percent of the working population of Santa Fé de la Laguna make pottery; nine-tenths of that of Jarácuaro are hat makers. Moreover, many towns which carry on various handicrafts may concentrate on one. Thus, Tarecuaro is famed for agave fiber products, Pamatácuaro and neighboring *ranchos* for wooden spoons and bowls. In most pueblos more than one craft is practiced, and in a few as many as eight distinct products are made.

177 Like so many of his material culture elements,
463 the Tarascan's crafts represent a mixture of

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[133] The "working" population in Tarascan towns is estimated by dividing the total population by 3.5. The Tarascan family averages about 5 persons, but often the wife devotes her spare time to cottage industry and is sometimes helped by the older children. Boys over 12 years old usually work in the fields as farmers or in the house at the father's trade.

[P. 57-a]

177 aboriginal and European products and techniques. 463 Most of his modern handicrafts are based on pre-Conquest industries (ceramics; wood products; leathercrafts; metal work in copper; weaving of cotton, agave fiber, stalks of tule). Except in a few pueblos, European techniques are now used in making pottery. In modern wood- [412] work the adz and the lathe are probably European and cabinet work is practiced entirely with Old World techniques. Cattle hide and horse hide [281] have replaced deerskin in leathercrafts, but the tanning techniques used are possibly aboriginal. [286] Although the ancient belt loom is used for most cotton and agave weaving, for weaving wool the European hand loom is employed. Sleeping mats (*petates*) are woven of tule as they were 500 years ago; hat making, on the other hand, is completely European. In regard to metals, European tech- [325] niques have replaced native methods, and iron has of course been introduced. Spanish friars and master craftsmen of the 16th century did indeed teach Tarascans many new techniques, but in most instances such were applied to long-established native industries.

438 An interesting aspect of cottage industries is
178 their ephemeral character. Owing to movement
[166] of artisan families from one pueblo to another and
changes in markets and fashions, certain crafts
disappear in some towns and reappear in others.
In the last 160 years 37 Tarascan villages and
*ranchos* have lost old crafts or gained new ones;
27 have retained their characteristic trades
(table 2).[184] The pottery industry in Santa Fé
[323] de la Laguna dates only from the last quarter
of the 19th century, and in 1910 hat making was
[294] brought into Jarácuaro by a few political refugees
from Pichátaro. A large number of Tarascan
[282] towns were famed for leathercrafts (saddles and
shoes) during the 18th and 19th centuries, but
now, owing to changes in transportation and the
rise of factory production, local leather products
have almost disappeared. Again, the iron craft
[325] of San Felipe de los Herreros has practically
vanished, for factory-made articles can be obtained
more cheaply from surrounding mestizo towns.

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[184] Insufficient data were at hand to determine possible changes in home industries for 20 towns and ranches.

TABLE 2.—*Native crafts in Tarascan villages*[1]

| Pueblo | 1946 | 1941 | 1822 | 1789 |
|---|---|---|---|---|
| Acachuén | None. | (?) | (?) | (?) |
| Ahuirán | Weaving (cotton):<br>Rebozos.<br>Belts.<br>Tablecloths.<br>Woodwork:<br>Violins.<br>Turned work. | Weaving (cotton):<br>Mantas.<br>Belts.<br>Knitting:<br>Men's stockings. | Knitting:<br>Men's stockings of cotton thread. | Knitting:<br>Men's cotton stockings. |
| Angahuan | Weaving (cotton):<br>Rebozos.<br>Belts.<br>Aprons.<br>Tablecloths. | Woodwork:<br>Shakes. | Woodwork:<br>Shakes. | Woodwork:<br>Boxes. |
| Arantepacua | Capotes.<br>Brooms. | (?) | (?) | Woodwork:<br>Saddle frames. |
| Aranza | Weaving (cotton):<br>Belts.<br>Tablecloths. | (?) | (?) | (Depopulated.) |
| Arocutin | None. | (?) | (?) | Petate weaving. |
| Atapan | None. | None. | None. | None. |
| Azajo | Weaving (cotton):<br>Belts.<br>Weaving (wool):<br>Blankets. | (?) | (?) | Leatherwork:<br>Tanning.<br>Shoes. |

See footnote at end of table.

[P. 58]

438
463

TABLE 2.—*Native crafts in Tarascan villages*[1]—Continued

| Pueblo | 1946 | 1841 | 1822 | 1789 |
|---|---|---|---|---|
| Caltzontzin (Parícutin) | Weaving (cotton):<br>Tablecloths.<br>Weaving (wool):<br>Blankets. | Weaving (cotton). | (?) | Weaving (cotton). |
| Capacuaro | Woodwork:<br>Broom handles.<br>Weaving (cotton):<br>Belts. | Woodwork:<br>Boxes. | (?) | Woodwork:<br>Boxes. |
| Carapan | None. | (?) | (?) | (?) |
| Charapan | Weaving (cotton):<br>Rebozos.<br>Belts.<br>Aprons.<br>Tablecloths.<br>Weaving (wool):<br>Blankets.<br>Hat making:<br>Palm leaf. | Weaving (cotton).<br>Woodwork:<br>Rosaries.<br>Chocolate beaters. | Woodwork:<br>Rosaries.<br>Malacates. | Weaving (cotton.<br>Woodwork:<br>Rosaries. |
| Cherán | Weaving (cotton):<br>Belts.<br>Napkins.<br>Tablecloths.<br>Weaving (wool):<br>Blankets.<br>Hat making:<br>Palm leaf.<br>Embroidery work. | (?) | Leatherwork:<br>Tanning.<br>Shoes. | Leatherwork (1743). |
| Cheranatzicurin | None. | None. | None. | Leatherwork:<br>Tanning.<br>Shoes. |
| Chilchota | Weaving (wool):<br>Blankets.<br>Basketry. | (?) | (?) | (?) |
| Cocucho | Pottery. | Pottery.<br>Woodwork:<br>Rosaries. | Woodwork:<br>Rosaries. | Pottery.<br>Woodwork:<br>Rosaries.<br>Other turned work.<br>Woodwork (1743):<br>Saddle frames.<br>Pottery (1743). |
| Coeneo | Leatherwork:<br>Shoes.<br>Belts.<br>Saddle leather.<br>Pottery. | (?) | Leatherwork:<br>Tanning.<br>Shoes. | Leatherwork:<br>Tanning.<br>Shoes. |
| Comanja | Pottery. | (?) | (?) | Leatherwork:<br>Tanning.<br>Shoes. |
| Conejos, Los (Parangaricutiro). | Weaving (wool):<br>Blankets. | Weaving (wool):<br>Blankets.<br>Weaving (cotton). | Weaving (wool):<br>Blankets. | Weaving (cotton). |
| Corupo | Woodwork:<br>Cabinetmaking.<br>Weaving (wool):<br>Blankets. | Woodwork:<br>Boxes.<br>Weaving (cotton). | Woodwork:<br>Piloncillo molds.<br>Boxes. | Woodwork:<br>Boxes. |
| Cuanajo | Woodwork:<br>Cabinet work:<br>Boxes. | Woodwork:<br>Cabinet work. | (?) | Woodwork:<br>Cabinet work.<br>Boxes. |

See footnote at end of table.

[P. 59]

438

463

Table 2.—*Native crafts in Tarascan villages* [1]—Continued

| Pueblo | 1946 | 1941 | 1822 | 1789 |
|---|---|---|---|---|
| Cuanajo—Continued | Weaving (cotton):<br>Belts.<br>Aprons.<br>Tablecloths.<br>Weaving (wool):<br>Blankets. | | | |
| Comachuén | Woodwork:<br>Bateas.<br>Weaving (wool):<br>Blankets. | Woodwork. | Woodwork:<br>Digging sticks.<br>Oars. | Woodwork:<br>Digging sticks.<br>Oars.<br>Woodwork (1742):<br>Saddle frames. |
| Erongarícuaro | Petate weaving | (?) | Petate weaving. | (?) |
| Huáncito | Pottery. | (?) | (?) | (?) |
| Ichán | Pottery. | (?) | (?) | (?) |
| Ihuatzio | Petate weaving.<br>Basketry. | (?) | (?) | (?) |
| Janitzio | Netting.<br>Weaving (cotton):<br>Men's belts. | (?) | (?) | Netting. |
| Jarácuaro | Hat making.<br>Palm leaf.<br>Weaving.<br>Belts.<br>Adobe making. | Petate weaving. | (?) | Petate weaving. |
| La Pacanda | None. | (?) | (?) | (?) |
| Nahuatzen | Weaving (wool):<br>Blankets.<br>Cloth.<br>Weaving (cotton):<br>Belts.<br>Embroidery work.<br>Leatherwork:<br>Saddles.<br>Belts. | Leatherwork:<br>Tanning.<br>Shoes.<br>Saddles. | Leatherwork:<br>Tanning.<br>Shoes. | Leatherwork:<br>Shoes.<br>Saddles. |
| Naranja | None. | (?) | (?) | Leatherwork:<br>Tanning.<br>Shoes. |
| Napízaro | Petate weaving. | (?) | (?) | (?) |
| Nocutzepo | None. | (?) | (?) | None. |
| Nurio | Weaving (wool):<br>Blankets. | Hat making:<br>Felt. | Hat making. | Hat making:<br>Felt. |
| Ocumicho | Clay toys. | (?) | Leatherwork:<br>Tanning.<br>Shoes. | Leatherwork:<br>Tanning.<br>Shoes.<br>Weaving (cotton) |
| Pamatácuaro | Woodwork:<br>Spoons.<br>Bateas.<br>Hat making:<br>Wheat straw.<br>Weaving (wool):<br>Blankets. | Woodwork:<br>Spoons.<br>Digging sticks.<br>Weaving (cotton). | Woodwork:<br>Spoons.<br>Digging sticks | Woodwork:<br>Spoons.<br>Digging sticks.<br>Weaving (cotton). |

See footnote at end of table.

[P. 60]

438

463

TABLE 2.—*Native crafts in Tarascan villages* [1]—Continued

| Pueblo | 1946 | 1941 | 1822 | 1789 |
|---|---|---|---|---|
| Paracho | Woodwork:<br>Musical instrument.<br>Turned work.<br>Cabinet work.<br>Toys.<br>Weaving (cotton):<br>Reboses.<br>Weaving (wool):<br>Blankets. | Woodwork:<br>Musical instrument.<br>Cabinet work. | Woodwork:<br>Musical instrument.<br>Cabinet work.<br>Saddle frames. | Woodwork:<br>Musical instrument.<br>Cabinet work. |
| Patamban | Pottery.<br>Weaving (wool):<br>Blankets. | (?) | Pottery. | Pottery. |
| Pichátaro | Weaving (wool):<br>Blankets.<br>Weaving (cotton):<br>Belts.<br>Reboses.<br>Woodwork:<br>Cabinet work.<br>Broom handles.<br>Bateas.<br>Hat making:<br>Palm leaf.<br>Petate weaving. | Weaving (agave).<br>Woodwork:<br>Cabinet work. | (?) | Woodwork:<br>Cabinet work. |
| Pomacuarán | None. | Weaving (cotton).<br>Knitting:<br>Men's stockings. | Knitting:<br>Men's stockings. | (?)<br>Woodwork (1742):<br>Saddle frames.<br>Pottery (?). |
| Puácuaro | Petate weaving.<br>Weaving (wool):<br>Blankets. | (?) | (?) | (?) |
| Quinceo | Weaving (wool):<br>Blankets.<br>Weaving (cotton):<br>Belts.<br>Capotes. | Woodwork:<br>Saddle frames. | Woodwork:<br>Saddle frames. | Woodwork:<br>Saddle frames. |
| Quiroga | Woodwork:<br>Bateas.<br>Turned work.<br>Chairs. | (?) | Woodwork:<br>Bateas.<br>Boxes. | Woodwork:<br>Bateas.<br>Woodwork (1742):<br>Bateas.<br>Boxes. |
| San Andrés | Petate weaving. | Petate weaving. | Petate weaving. | Petate weaving. |
| San Angel | None. | (?) | (?) | None. |
| Santa Fé | Pottery. | (?) | Woodwork. | Woodwork:<br>Bateas (painted).<br>Boxes (painted).<br>Petate weaving. |
| San Felipe | Ironwork.<br>Weaving (cotton):<br>Belts.<br>Weaving (wool):<br>Blankets. | Ironwork. | Ironwork. | Ironwork (also in 1644). |
| San Jerónimo | Petate weaving.<br>Weaving (wool):<br>Belts.<br>Blankets. | (?) | Petate weaving. | Petate weaving.<br>Woodwork:<br>Boxes. |

[1] See footnote at end of table.

[P. 61]

438
463

TABLE 2.—*Native crafts in Tarascan villages* [1]—Continued

| Pueblo | 1946 | 1941 | 1822 | 1789 |
|---|---|---|---|---|
| San José | Pottery. | (?) | Leather work:<br>Tanning.<br>Woodwork:<br>Saddle frames. | (?) |
| San Lorenzo | Weaving (cotton):<br>Belts.<br>Tablecloths. | (?) | (?) | (?) |
| Santo Tomás | Pottery. | (?) | (?) | (?) |
| Sevina | Woodwork:<br>Bateas.<br>Weaving (cotton):<br>Belts.<br>Weaving (wool):<br>Blankets. | Woodwork:<br>Shakes. | Woodwork:<br>Shakes. | Woodwork:<br>Saddle frames. |
| Sicuicho | None. | None. | None. | Weaving (cotton). |
| Sirio | Woodwork:<br>Spoons.<br>Bateas. | (Nonexistent.) | (Nonexistent.) | (Nonexistent.) |
| Sopoco | Pottery. | (?) | (?) | (?) |
| Tacáscuaro | Petate weaving.<br>Capote making. | Petate weaving. | Petate weaving. | Petate weaving. |
| Tanaco | Weaving (wool):<br>Blankets.<br>Weaving (agave):<br>Morrales.<br>Ayates. | None. | (?) | (?)<br>Pottery (1742).<br>Woodworking (1742).<br>Saddle frames. |
| Tanaquillo | Pottery. | (?) | (?) | (?) |
| Tarecuato | Weaving (agave):<br>Morrales.<br>Ayates.<br>Costales.<br>Weaving (cotton):<br>Belts.<br>Embroidery work.<br>Rope making. | (?) | (?) | Weaving (agave). |
| Tarejero | None. | (?) | (?) | Leatherwork:<br>Tanning.<br>Shoes. |
| Teremendo | Hat making:<br>Wheat straw.<br>Palm leaf.<br>Weaving (wool):<br>Blankets. | (?) | Leatherwork:<br>Shoes. | (?) |
| Tiríndaro | Pottery:<br>(Hat making ceased in 1936.) | (?) | (?) | Leatherwork:<br>Tanning.<br>Shoes. |
| Tócuaro | Woodwork:<br>Bateas.<br>Spoons.<br>Masks. | (?) | (?) | None. |
| Tacuro | Pottery. | (?) | (?) | (?) |

See footnote at end of table

[P. 62:a]

438

463

TABLE 2.—*Native crafts in Tarascan villages*[1]—Continued

| Pueblo | 1946 | 1841 | 1822 | 1789 |
|---|---|---|---|---|
| Turícuaro | Stonework:<br>Metates.<br>Woodwork:<br>Bateas.<br>Broom handles.<br>Weaving (cotton):<br>Belts.<br>Weaving (wool):<br>Blankets.<br>Capote making. | Stonework:<br>Metates. | Stonework:<br>Metates. | (?) |
| Tzintzuntzan | Pottery. | Pottery. | Pottery. | Pottery. |
| Urapicho | Hat making:<br>Palm leaf. | None. | None (?). | (?) |
| | | | | Woodwork (1742):<br>Saddle frames. |
| Uricho | Petate weaving. | (?) | (?) | Petate weaving. |
| Zacán | (?) | Weaving (cotton). | Weaving (cotton):<br>Mantas. | (?)<br>Woodwork (1644):<br>Bateas.<br>Rope making (1644). |
| Zirosto | Woodwork:<br>Bateas (disappeared since volcano). | Woodwork:<br>Bateas.<br>Spoons.<br>Piloncillo molds. | Woodwork:<br>Bateas (painted). | Woodwork:<br>Bateas. |
| | Weaving (wool):<br>Blankets. | Weaving (cotton) | | Woodwork (1644):<br>Bateas.<br>Rope making (1644). |

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[1] Sources: 1644, Basalenque (1886); 1742, Villaseñor y Sánchez (1746–48); 1789, AGN, Historia, vol. 73; 1822, Martinez de Lejarza (1824); 1841, AAM, siglo XIX, leg. 704, Memorias Estadísticas, 1841; 1946, Field observation.

[P.62b]

438 463 178 Some industries, important in pre-Conquest times, have completely disappeared. The fine Tarascan featherwork was nearly extinct by the beginning of the 18th century (Escobar, 1924, pp. 149–151). Furthermore, the use of the ground pith of maize stalks, from which various objects (mainly religious) were molded, apparently flared in the 17th and 18th centuries, and then disappeared (Escobar, 1924, p. 144).

On the other hand, crafts which have persisted in some pueblos for the last 160 years may predate the Conquest. Witness the leatherwork of Nahuatzen, a leather-making center in 1640, where both deer and cow hides were tanned (Zavala and Castello, 1939–46, vol. 7, pp. 361–362); the many towns which still specialize in cotton weaving with the belt loom; the petate-making towns around the shores of Lake Pátzcuaro.

## CERAMICS

323 Clayware is indispensable in most Mexican kitchens,[135] and tile roofing is used extensively in

[P.62c]

323 most parts of the country. As in pre-Conquest days, the manufacture of clayware in Mexico is still a cottage industry in which various towns specialize.

Including Tzintzuntzan (largely mestizo), there
323 are nine pottery towns in the present Tarascan
438 area: Santa Fé, Comanja, Zipiajo, Huánsito, Santo Tomás, San José, Patamban, and Cocucho. With the exception of Cocucho, all are located in the čaránda, or clay-soils district north of the Sierra, usually near deposits of suitable firing clay (map 20). The Cocucho potters have always hauled clay from the vicinity of Tangancícuaro and San José, for suitable deposits rarely occur in the Sierra. Other pottery towns, now mestizo, are also located in the northern clay area (Tangancícuaro, Capula, Villa Morelos, Penícuaro). Moreover, other Tarascan villages in La Cañada (Sopoco, Ichán, Tacuro, Tanaquillo), in the Zacapu

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[116] The common clay kitchen utensils include various types of pots (*ollas*) for boiling; the *comal*, or round, flat piece placed on the hearth for frying, broiling, and toasting; small saucers (*casuelas*) for frying and from which food is sometimes eaten; water jugs (*cántaros*); drinking cups (*vasos*).

323 Basin (Tiríndaro), and in the Lake area (San
438 Jerónimo and Erongarícuaro) make pottery on a small scale, mainly for local use.

Modern Tarascans use both the hand and the mold techniques. The latter is usually accompanied by application of lead oxide glaze. The former is still used in only three pueblos—Comanja, Zipiajo, and Cocucho, where it is performed solely by women.[138] In Comanja the lower part of the vessel is shaped from a single daub of clay. A depression is made in the center and the walls are built up with the hands by pressing in small daubs of clay. The outer and inner surfaces are smoothed with a corncob. The result is a well-balanced vessel with walls of even thickness. The vessels are rough-finished, rarely polished, and litharge glaze is never employed. Firing is accomplished by placing pottery on a pile of dried manure. The pots are covered with dried grass (*zacatón*), which, when lighted, ignites the manure. The grass ash is permitted to cover the pots, a hole being left in the center of the pile to permit smoke from the smoldering manure to escape. After 3 hours the pottery is fired to sufficient hardness. The chief ceramic products of Comanja are the large water ollas, called "*comanjas*," which are marketed in the Sierra, the Lake area, and in some of the mestizo towns to the north. Similar ollas are made by an identical process in Zipiajo, but on a smaller scale.

In Cocucho the ceramic process is similar to that of Comanja, except that the base of the vessel is formed on the bottom of a broken olla and part of the wall is built up of rolled pieces of clay (pls. 9 and 10). Firing is also similar, but pine bark and rotten wood, rather than manure, is employed for fuel; this process probably represents the truly aboriginal technique. The Cocucho women make large ollas with thick walls, especially famed as tamale cooking pots throughout the Sierra. This olla, rarely used outside of the Sierra, is called kukúču, from which the village derives its name. The tunúči, a small flat olla used as a *tlascal* (receptacle for tortillas), is also made.

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[138] The native hand technique was practiced in other Tarascan towns during the 18th century. In 1729, according to Matías de Escobar, "*Es cosa que admirar como que los he visto en Tiripitío* [southwest of Morelia] *como labran cuanto* [loza] *quieren, sin las ruedas y moldes de los Españoles. Un pequeño cuero y una mala naranja son todos los instrumentos con que obran*" (Escobar, 1924, p. 148). Both the hand and mold methods appear to be native in Mexico, although the latter was known to Europeans. See Foster, 1948, for a discussion of native and introduced elements in the modern mold technique.

323 438 The manufacture of these two Tarascan pots is slowly dying. In 1946 only 10 women were making pottery in Cocucho, whereas in 1841 it was made in practically every household of the village (AAM, siglo XIX, leg. 707).

Today by far the greater amount of Tarascan pottery is made with molds by both men and women.[137] None is manufactured with the potter's wheel. All who use molds have taken [177] over the European glaze technique and the firing oven. Tarascan mold-made pottery can be differentiated according to finish. The "Patamban" type, for instance, carries a beautiful green glaze, known and admired over most of western Mexico.[138] Green glaze is also used in Santo Tomás and Santa Fé de la Laguna, having been recently introduced into the latter pueblo. Pottery hand-painted with brilliant floral designs on a background of black glaze is a specialty of Santa Fé de la Laguna. This unusual technique was [177] introduced around 1900, and was readily adopted by the inhabitants, whose former industry was batea painting. As mentioned previously, the inhabitants of Santa Fé de la Laguna began to make pots during the last quarter of the 19th century. Since then their ware has become [439] known throughout Mexico, and some is imported by United States curio shops. In 1936 the technique spread to Tiríndaro, when daughters of a Santa Fé potter married into Tiríndaro families. The most common modern household pottery is the Red ware, either glazed or polished, made in Tzintzuntzan, Huánsito, San José, and Patamban. Before being fired the large pieces, such as ollas and *cántaros*, are usually slipped with a red clay solution and then burnished with iron pyrites. A handsomely polished surface, similar to that of the pre-Conquest wares, results after firing. (Such ware is fired only once.) Smaller pieces are often glazed with litharge. Glazed pieces are fired twice, the litharge being applied after the first firing and the glazed surface appearing after the second. Designs are often painted in white (*tierra blanca*) and black (*tierra* [439] *de hormigón*). Red ware is carried as far as Guadal-

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[137] See Foster (1948) for a detailed description of the mold technique used by the potters of Tzintzuntzan.

[138] To produce the green color, pulverized copper oxide (*cobre quemado*) and yellow flinty quartz (*pedernal*) are added to the lead oxide (litharge) solution, which is applied to the pottery before firing. A black glaze is also made by adding a mineral called *tierra de hormigón* and pedernal to the litharge.

438 ×323 ajara, Morelia, the *tierra caliente* of Guerrero, and Mexico City.

[439] Another type of ceramic industry is represented by the clay toy figurines made by the women of Ocumicho in their spare time. The hollow figures are formed with molds in shapes of diminutive horses, sheep, oxen, and men, each with an opening which serves as a whistle. After firing, they are painted and varnished. Owing to complete lack of water near the town in the dry season, this activity is carried on only during the rains. Ocumicho figurines are seen in markets in many parts of western Mexico and the *tierra caliente* of Guerrero and Michoacán.

Red clay tiles, which are slowly replacing shakes in the Tarascan area, are made in some pueblos within the clay belt on the margins of the Sierra. Tanaco is the sole town within the Sierra proper to make this product. In Nahuatzen the [177] technique of making flat concrete tiles was introduced in 1944. Such tiles are replacing the less durable clay ones in some mestizo towns.

## TEXTILES

286 In 35 modern Tarascan villages spinning and weaving of cotton, wool, or agave fiber are carried on as cottage industries. Both indigenous [177] and European techniques are employed, neither having changed since the 16th century. Since the beginning of the present century, however, factory-made textiles from large Mexican towns have begun to displace some home-woven articles, but indigenous conservatism still supports the native handicraft.

**Spinning.**—Formerly Tarascan weavers spun 283 raw cotton from the *tierra caliente*, but at present commercial cotton thread, purchased in mestizo markets, is prepared for weaving by twisting five to six strands on the spinning wheel. Today only raw wool and agave fiber are homespun, the latter with the native *malacate* (uipínu), or hand spindle with round clay wheel, the former with the 16th century spinning wheel (*torno*). (See Beals, 1946, p. 36, for illustration of spinning wheel.) [386] Both cotton thread and spun wool are usually colored locally with aniline dyes purchased in mestizo markets.

286 **Weaving.**—Tarascans weave all agave and cotton fabrics on the native belt loom (patákua (Paracho); jopáɹatakua (Charapan, Tarecuato)), a horizontal loom which has a backstrap and is

[P. 64-b]

286 found in most parts of indigenous America south of the United States (pl. 11). Customarily, only women operate this loom; however, in Tarecuato agave fiber is woven with it by both men and women, and in Tanaco, exclusively by men. Until the 1880's the most important fabric made with the belt loom was the cotton *manta*, a simple white cloth used for native clothing since pre-Conquest days. The cheap factory-made cottons [177] of Puebla and Veracruz have completely displaced the indigenous *manta*, so that today Tarascans weave women's and men's belts (*fajas*), shawls (*rebozos*), aprons (*delanteras*), tablecloths and napkins (*servilletas*). Widths of cloth ranging from 1½ inches (women's belts) to more than a yard (*rebozos*) can be woven on these looms. Designs are usually woven into the above-named articles, the warp threads being first arranged for large widths on a long stick (šekuárakua) and for the narrow *fajas* on the šekuáni, an arrangement of four to five small sticks placed in the ground. Some of the finest examples of cotton weaving are found in the Sierra pueblos: Paracho (whose women make the Tarascan "*rebozo corriente*"), Ahuíran (women's belts), Angahuan (women's belts, aprons, *rebozos*), Charapan (belts, aprons, tablecloths), San Lorenzo (tablecloths, belts).

In the early colonial period the weaving of agave fiber was apparently widespread in the Sierra (AGN Congregaciones, f. 14), but today it is limited to Tarecuato and Tanaco.[139] In these villages the main agave fiber products are *morrales* (square bag with shoulder straps), *ayates* (coarse piece for wrapping articles to be carried on back), and *costales* (coarsely woven sacks for carrying goods on mules and burros). The fiber of *maguey bruto* 283 (akámba t'arímiti) is used for the finely woven morrales, while that of *maguey del toro* (torakámba) is employed for the coarser *ayates* and *costales*. Leaves of the agave plant are cut and the fiber extracted and carded. After drying, it is spun by (1) rolling fibers on the thigh with the hand, or (2) with the malacate. The fibers are woven on [286] the belt loom in the same fashion as cotton[140] (pl. 11). A piece of the agave fabric is doubled over and sewn on the sides to make the morral, and a shoulder cord is added. Other agave fiber [439] products made in Tarecuato include rope and

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[139] Agave fiber products were manufactured in Pichátaro during the last century (AAM, siglo XIX, leg. 707).

[140] The loom for weaving agave fiber is called uágatakua in Tarecuato.

283
439 cord; these and the woven articles are marketed in Guanajuato, Jalisco, the *tierra caliente*, and in all parts of the present Tarascan area.

286
[177] Woolen products are woven mainly on the European loom, which was introduced early in the 16th century.[141] During most of the colonial period this loom was used principally in the *obrajes*, or cloth mills established by Spaniards in various parts of Mexico near an abundant supply of wool. Indians first learned European weaving techniques in these mills, the labor for which came from surrounding native pueblos. By 1540 an *obraje*, operated by 26 forced native workers, had been set up in Acámbaro (Paso y Troncoso, 1905, vol. 1, p. 33), and before the close of the century woolen mills existed in Taximaroa and Valladolid (Zavala and Castello, 1939–46, vol. 6, p. 225). Moreover, Indians quickly learned to spin wool, for tributes of spun wool were exacted from some pueblos, possibly to supply *obrajes* nearby.[142] It is not clear when the Tarascans began to use the hand loom in their own villages; possibly some looms were set up in the northern towns in the 16th century.[143] A report of 1789 (AGN Historia, vol. 73) on the Tarascan pueblos of Lake Pátzcuaro and the Sierra, however, mentions the use only of the native loom. The first indication of a native wool industry in the Tarascan area comes from the Martínez de Lejarza report of 1822, which cites the *obrajeros* of San Juan Parangaricutiro (later the most renowned of the Tarascan blanket-weaving towns) and of several northern mestizo towns.[144] Tarascan wool weaving on a commercial scale may be postcolonial, having little economic basis until the break-down of the large woolen mills at the close of the colonial period. Today woolen blankets

[438] (*cobijas, serapes*) are made on the European hand loom in 24 Tarascan towns, Nahuatzen and prevolcano Parangaricutiro being the largest producers.

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[140] Strands of wool are sometimes mixed with cotton in making women's belts. Often the warp is of woolen strands, the woof of cotton thread.

[142] For example, ca. 1540 the people of Puruándiro (Michoacán) contributed each week two arrobas of spun wool (Paso y Troncoso, 1905, vol. 1, p. 117).

[143] The Relación de Chilchota (Mus. Nac.) states that some natives in the town made clothes of wool, but the type of loom used is not given. Moreover, according to the Relación de Cuitzeo (Mus. Nac.), the Indians living around the lake "... *benden lana a los comarcanos para hacer ropa para vestirse, y sus mugeres la benefician* ..." Again, the type of loom used to weave wool is not given.

[144] The northern towns mentioned: Morelia, Zinapécuaro, Zitácuaro, Taximaroa, Jiquilpan, Huarachita, La Piedad, Huaniqueo, and Tangamandapio. At that time the latter pueblo was wholly Tarascan; according to Martínez de Lejarza (1824, p. 227), "... *sus habitantes trabajan telares de algodón y lana.*"

[P. 65b]

286 ducers. In many towns only three of four
*obrajeros* operate full time and produce mainly
for local consumption. Raw wool is purchased
locally, is washed, carded, dried, and spun by the
*obrajero*. In addition to manufacturing blankets,
[438] some weavers in Nahuatzen, Charapan, and
Tanaco make woolen cloth for the traditional
black skirt, which is still worn by most Tarascan
women. Such skirts, however, are being made
increasingly from factory-woven woolens purchased
in mestizo towns.

**Embroidery and sewing.**—In the Sierra villages
531 of San Lorenzo, Tarecuato, Angahuan, Ahuíran,
438 Cuanajo, Nahuatzen, and Charapan some women
specialize in cross-stitching and embroidering
designs on blouses (*huipiles*), napkins, and tablecloths.
Many of these articles are for tourist
trade in Uruapan, Zamora, and Pátzcuaro.
286 During the colonial period and the first half of the
19th century, the men and women of Ahuíran
and Pomacuarán knitted men's stockings of cotton
thread, using otate needles (AGN Historia, vol. 73,
f. 344; Martínez de Lejarza, 1824, pp. 179-180).
[439] Ahuíran stockings were sold to mestizos and
Spaniards over a wide area, but this trade declined
after the change in styles of men's clothing in
the early 1800's.

**Hat making.**—Among the Tarascans this industry
294 was introduced probably in early colonial
[177] days.[145] However, the first mention of the industry
comes from the report of 1789, which cites
it in Nurío (AGN Historia, vol. 73, f. 348).
There, hats were made of wool, likely by a felting
process, but the industry had disappeared by the
end of the last century. None of the colonial
sources mentions the manufacture of straw hats
in Tarascan towns. Old men from Pichátaro
remember hat making during their childhood,
which fact at least dates the industry in the last
half of the 19th century. (Palm-leaf hats were
made in Morelia at the end of the colonial period,
according to Martínez de Lejarza, 1824, p. 29.)
294 Today hats (principally of palm leaf, some of
438 wheat straw) are made in seven Tarascan towns,
Jarácuaro Island being the main center.[146] Palm
leaf brought up from the *tierra caliente* is cut in
thin sections, which are braided into strips, called

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[145] According to tradition, hat making was one of the many industries which Don Vasco de Quiroga taught the natives. (Leon, 1904, p. 63.)

[146] At least one member (and often three or four) of every family on Jarácuaro Island makes hats. Having little tillable land, this pueblo is one of the most specialized home-industry towns in the Tarascan area.

294 *trensas*. In practically every Tarascan pueblo women, children, and sometimes men weave
438 *trensas* in their spare time, while walking to and from market, and while herding sheep. Braids are sold in the main markets, where they are purchased by hat makers. Little wheat straw is now braided, palm leaf being more durable and more easily handled.[147] After they are pressed and straightened with wooden rollers (fashioned like a clothes wringer), the braids are sewed together in spiral form, beginning at the crown. The brim and crown are made separately and sewed together. In Jarácuaro wooden forms are used to block crowns. Most hatters employ a Singer sewing machine, but those of Urapicho, Pamatácuaro, and Zacán sew by hand. In some towns hat making is disappearing, owing largely to factory competition. Pichátaro, formerly an important hat town, now has but four hatters. In 1936 the industry disappeared completely in Tiríndaro.

**Tule weaving.**—The indigenous sleeping mat or
285 *petate* (k'uírakua) is found in most of highland
438 Mexico. Also, the fire fan or *soplador* (p'uníta-tarákua), an indispensable kitchen utensil, is woven of tule. Mats and fire fans are made wherever tule is available—along the shores of shallow lakes, marshy areas, and river banks. Consequently, the villagers living around Lake Pátzcuaro are the chief tule weavers in the present Tarascan area (map 20; pl. 12). In San Andrés 90 percent of the working population make *petates*. Even a few families in the Sierra towns of Pichátaro and Cherán fabricate mats from tule reeds imported from Erongarícuaro. Formerly the towns near the northern march[1] districts were important *petate* producers, but there the industry has greatly declined with the desiccation of wet areas and disappearance of the tule brakes.[148] Tule is likewise being depleted along the shores of Lake Pátzcuaro. The *petateros* of Puácuaro, Napízaro, and Uricho import reeds from Jarácuaro Island, the local supply having been exhausted years ago.

Tule reeds are cut with the sickle, semidried, and bundled for transport or storage (pl. 8). In

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[147] Hats of wheat straw are now made only in Pamatácuaro, Teremendo, and Apo (mestizo).

[148] A few *petates* are still made in Tarascan Tarejero, on the border of the former Zacapu marshes; in mestizo Etúcuaro (Tangancícuaro Basin); and in Tacátzcuaro (near the Cotija graben lakes). Moreover, the industry is still carried on in some of the Lerma Delta towns east of Lake Chapala, and in a few villages around Lake Cuitzeo.

[1] [probably should read 'marsh'.—Analyst]

[P. 66b] Pátzcuaro

285 438 the Lake area a twilled technique is used in mat making, which is performed on the ground, the only tools being a knife or sharp stone to cut tule stalks and a wooden mallet to flatten the reeds as they are twilled. Several sizes of mats are made; the largest, called simply k'uírakua-k'éri, measures 1.5 by 1 m.[149] Both mats and fire fans are taken to the Lake markets (Pátzcuaro, Erongarícuaro, Quiroga), where they are purchased by the Sierra people and buyers from the *tierra caliente*.

**Basketry.**—Ihuatzio and San Jerónimo in the Lake area are the only modern Tarascan towns in which baskets are made. The former Tarascan towns of Tangamandapio (west of Zamora) and Panindícuaro (north of Zacapu) are the main basket centers in the general area, supplying the Sierra people with the šúndiča, or harvest baskets for maize. The Ihuatzio baskets are made of split carrizo stalks, which grow in abundance in local house lots. Both wicker and twilling techniques are used (pl. 12).

286 438 [283] **Netting.**—In all fishing villages around Lake Pátzcuaro nets are made by men, women, and children in their spare time. On Janitzio and the Urandén Islands a few professional *rederos* fabricate nets to sell to fishers in other pueblos. Cotton thread purchased in Pátzcuaro is wound on the *hilador* (šorúranskua) and five to six strands are twisted with the native malacate or with the European spinning wheel. The twisted strands are water-soaked and sun-dried. Nets are made with the čurúkua, a large wooden needle (20 cm. long, 2 cm. wide).

294 [171] [438] [439] **Capote making.**—In many parts of indigenous Mexico the palm-leaf raincape (*capote*), similar to those worn in the Orient, is a common outdoor apparel during the wet season. *Capotes* are made by women in three Tarascan towns—Quinceo, Arantepacua, and Turicuaro—using leaves of the *palma pimu* (*Acoelorraphe pimo*), which are imported from the *tierra caliente* below Ario de Rosales.[150] The capes are fabricated by tying soaked strips of palm leaf onto braided cords, two of which are stretched parallel and one foot apart on pegs driven into the ground. The strips of

[Text continues top of P. 67a]

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[149] Other types: The k'amérita (1.3 m.×80 cm.) and the šimánitepémuša (1 m.×80 cm.), both used for sleeping; the jatápetakua, a small knee mat; šóetišan, a long, narrow mat sold to mestizos as a sort of rug. Many more sizes and varieties occur, the names and types varying from place to place. The terms and types given above were observed in Ihuatzio and some of the ranches along the shore of the Tariu-k'éri Peninsula.

[150] Most of the palm leaves used in Arantepacua are said to come from the localities of Rosario, La Playa, Charapendo, and San Marcos, south of Ario.

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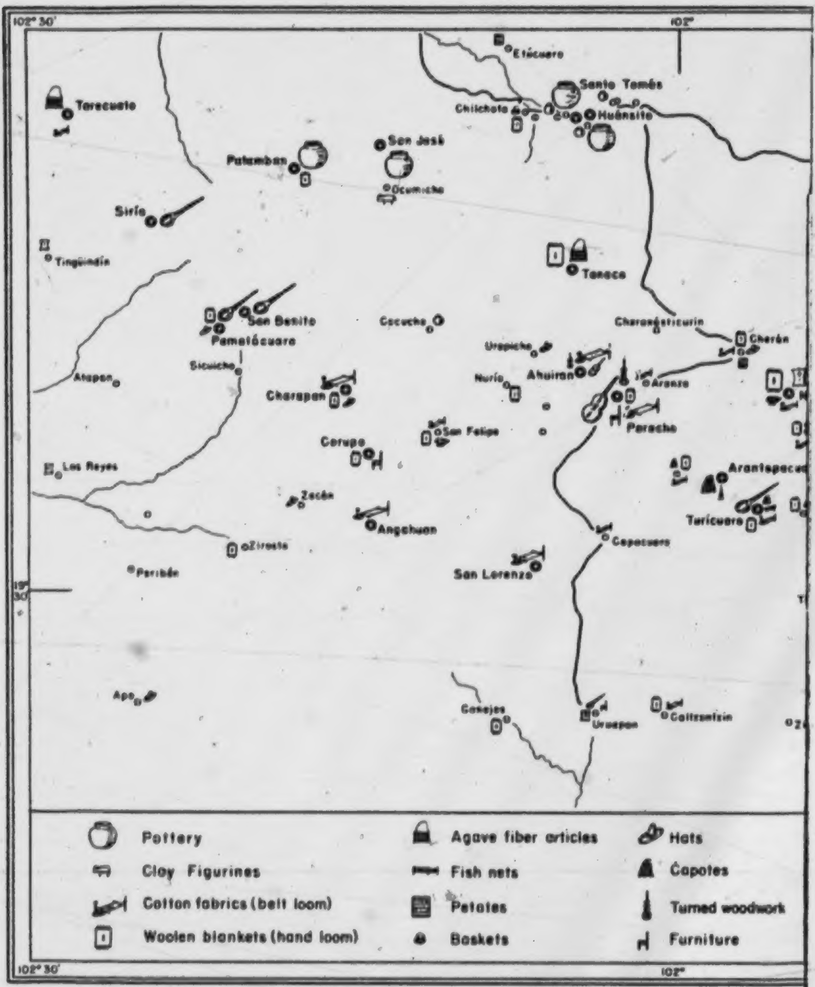
102° 30'
102°
Etúcuaro
Santo Tomás
Chilchota
Huáncito
San José
Tarecuato
Patamban
Ocumicho
Sirio
Tingüindín
Tanaco
San Benito
Pamatácuaro
Cocucho
Charapan
Urapicho
Cherán
Sicuicho
Atapan
Nurío
Ahuiran
Aranza
Paracho
Corupo
San Felipe
Los Reyes
Arantepacua
Zacán
Turícuaro
Angahuan
Capacuaro
Zirosto
San Lorenzo
Peribán
19° 30'
Apo
Cosejes
Uruapan
Caltzontzin
Pottery
Clay Figurines
Cotton fabrics (belt loom)
Woolen blankets (hand loom)
Agave fiber articles
Fish nets
Petates
Baskets
Hats
Capotes
Turned woodwork
Furniture
102° 30'
102°

[Facing page 66; section A]

Map 20.—Distribution of handicrafts in the m

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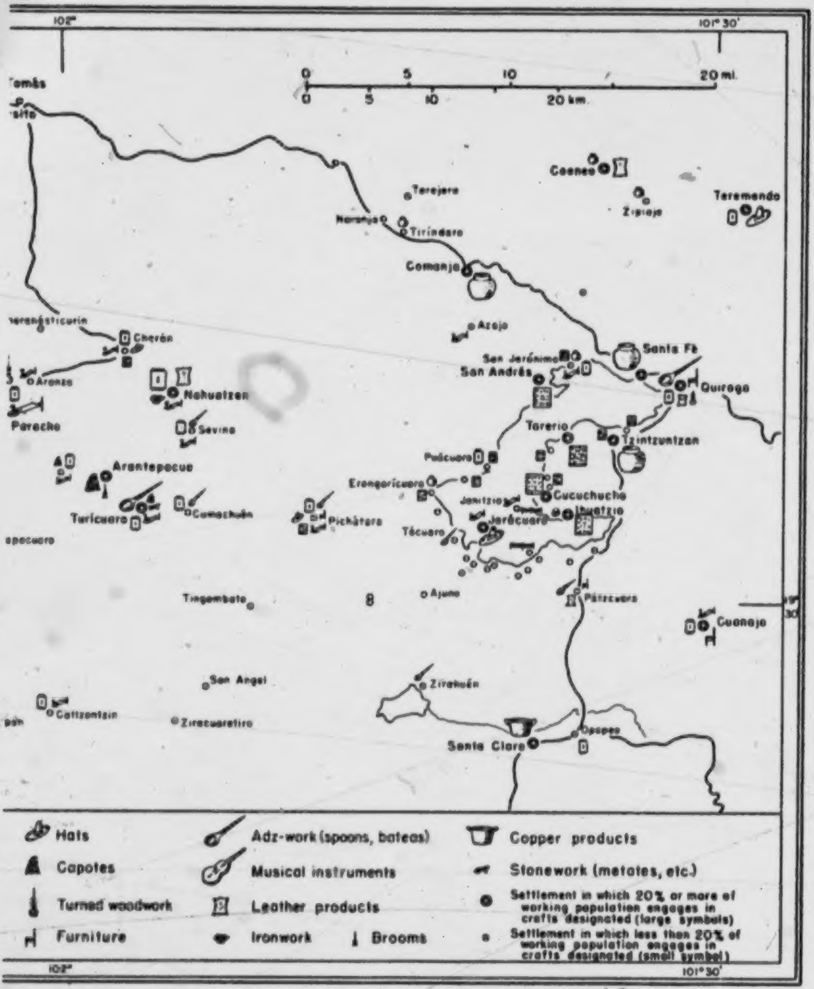
102°
101° 30'
0 5 10 20 mi.
0 5 10 20 km.
Tomás
Coeneo
Zipiajo
Teremendo
Terejero
Naranja
Tiríndaro
Comanja
Azajo
Cherán
Aranza
Paracho
Nahuatzen
Sevina
Arantepacua
Turícuaro
Comachuén
Pichátaro
Erongarícuaro
San Jerónimo
San Andrés
Santa Fé
Quiroga
Tzintzuntzan
Tarerio
Pátzcuaro
Cucuchucho
Ihuatzio
Janitzio
Jarácuaro
Técuaro
Ajuno
Tingambato
Cuanajo
Zirahuén
San Angel
Cattzontzin
Ziracuaretiro
Santa Clara
Opopeo
8
Hats
Capotes
Turned woodwork
Furniture
Adz-work (spoons, bateas)
Musical instruments
Leather products
Ironwork
Brooms
Copper products
Stonework (metates, etc.)
Settlement in which 20% or more of working population engages in crafts designated (large symbols)
Settlement in which less than 20% of working population engages in crafts designated (small symbol)

ion of handicrafts in the modern Tarascan area. [Facing page 66; section B]

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[P. 67-9]

294 palm are tied on one cord, half-hitched to the second one, and then tied back to the first; the loose end of the strip is permitted to hang over the second cord, thus forming a drainage surface similar to thatch (pl. 12). The process is repeated, adding a new row of tied strips to the previous one until the garment (4 ft. long and 3 ft. wide) is completed. Arantepacua *capotes* are [439] marketed as far north as Guanajuato. No mention is made of these raincapes in the colonial sources, nor is there a Tarascan word for the garment. It is not improbable that the *capote* is an [177] introduced trait.

**Broommaking.**—This is another minor industry 412 now practiced by a few men in Arantepacua. Pimu palm leaves are symmetrically arranged around the end of a finished pine stick and then tied with agave fiber or a braided strip of palm. [171] The result is a common broom found in all parts of central Mexico.

### WOODCRAFT

According to the early Spanish chroniclers, the 322 Tarascans were clever craftsmen in wood, and under the instruction of Spanish masters the [177] natives became among the best carpenters in New Spain (La Rea, 1945, p. 20; Escobar, 1924, p. 147). By 1580 Indian carpenters in at least four towns—Pátzcuaro, Necotlán (Undameo), Tiripitío, and Tingüindín—were turning out European-styled tables, chairs, and writing desks, which found ready sale among Spanish colonists in all parts of Michoacán.[180a] At that time lathework was established in Pátzcuaro, and probably before 1540 Tarascans had begun to carve saddle frames for Spanish horsemen (Molotinía, 1903, p. 183). Like other Tarascan industries, woodwork was probably a rudimentary pre-Conquest craft greatly modified and improved by European techniques. However, the present commercial types of Tarascan woodwork—cabinet work, lathe work, and adz work—all appear to have been developed in the 16th century.

Specialized woodwork (apart from lumbering and shake making) was formerly more widespread among Tarascans than at present. At the end of the 18th century wood objects were manufactured in 21 pueblos (AGN Historia, vol. 73), today in only 13 towns. In but eight of the latter is the

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[180a] Rel. de Pátzcuaro, 1581 (Martinez, 1889, p. 47); Mus. Nac., leg. 102: Rel. de Chocandirán, Rel. de Necotlán; Rel. de Tiripitío, ms. (in García Library, Univ. of Texas).

[P. 67-b]

322 industry more than 150 years old; in only five of the present towns do more than 25 percent of the working population engage in woodwork.

**Adz work.**—This is the simplest of the wood techniques now practiced by Tarascans (and by other Indian groups, as well as by mestizos in many parts of Mexico). Before the Conquest the Indians shaped boats from a single log and carved delicate figures on throwing sticks and tom-toms, possibly using obsidian and copper cutting tools. With the introduction of the [177] European steel adz and gouge early in the 16th century, native wood carving was greatly facilitated. One of the earliest European objects which the Tarascans carved with the adz was the saddle frame (*fuste*), an industry which disappeared 100 years ago. Today wooden spoons 322 438 and bowls (*bateas*) of softwoods are the principal adz and gouge products, Pamatácuaro and its offspring settlements Sirío and San Benito being the chief producers.[151] These objects are also made in the Tarascan villages of Turícuaro, Cumachuén, Pichátaro, Zirosto (formerly important) and Sevina (where the industry was introduced a few years ago), and in the mestizo towns of Pátzcuaro, Tócuaro, Zirahuén, Uruapan, Quiroga. Spoons and bowls are made from softwoods: *jaboncillo* (šápu), *palo blano* (urápit-úku), and *aile* (pámu). Occasionally *bateas* are made of pine. Tools include the common adz and vari- [412] ously shaped gouges, which are driven with a wooden mallet (pl. 13). The products of Pamatácuaro and surrounding settlements are marketed in all parts of Michoacán and sometimes are taken as far as Guadalajara and Mexico City.

**Lathe work.**—This represents one of the most characteristic forms of modern Tarascan woodcraft, Paracho being the center of the *torneros*. Formerly the simple bow lathe was employed to make bowls, vases, candlesticks, chocolate beaters (*molinillos*), chessmen, toys (tops, yoyos), darning eggs, etc. (See Beals, 1946, p. 43, for illustration of bow lathe.) Since 1942, however, when a power line was constructed near the town, most of the bows have been replaced by electrically powered lathes. About six *torneros* in Paracho and five in neighboring Ahuíran still use the bow. Formerly turned objects, chiefly rosaries, choco-

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[151] It is doubtful that wooden *bateas* were carved before the Spanish Conquest. Gourds of *Crescentia alata* probably functioned for the modern *batea*. The "*bateas*" employed in early Spanish gold placering in the *tierra caliente* were likely fashioned from *Crescentia* gourds.

322 late beaters, and *malacates*, were made in Charapan
[438] and Cocucho, but this activity has now disappeared.
Most of the turned objects are shaped
from madroño wood (panáŋksʌ). Carving is
done by pressing variously shaped steel chisels
and gouges against the whirling block of wood.
[531] In Paracho, designs are painted and burned into
objects, and the surface lacquered or varnished.
[177] The wheel lathe, an early Spanish introduction, is
used by most cabinetmakers in the area for
turning wood.

**Cabinet work.**—As mentioned earlier, cabinet work was rapidly adopted by Tarascan craftsmen in the early colonial period. In the 17th and 18th centuries inventories of miners' and merchants' household goods in west-central and northern Mexico rarely fail to mention chairs, tables, boxes "de Mechoacán." The majority of present Tarascan towns has at least one cabinetmaker who partially satisfies local demand for furniture. In
[438] Paracho, Corupo, and Cuanajo—the Tarascan
furniture centers—carpenters make chairs, tables,
bed frames. Cuanajo is famed for its wooden chests, which are marketed in all parts of Michoacán. Most furniture is made from pine wood with simple tools (saw, mallet, plane, chisel, gouge). As mentioned above, chair and table legs are turned on the wheel lathe (fig. 6). The more common jointing techniques used include mor-

322 ticing and tenoning, housing, and dovetailing.
Some pieces are joined with wooden pegs; metallic
nails and screws are never employed.

**Musical instruments.**—The most sophisticated
322 of Tarascan woodwork is the manufacture of
534 stringed instruments in Paracho. This pueblo
has been the guitar town of Mexico since colonial
[438] times. In 1940 Paracho claimed 49 guitar makers
and three individuals who made violins (including
base viols). The art has spread to neighboring
Ahuíran, where three men made violins in 1946.
Local woods—*tirímu*, *aile*, and *palo blanco*—are
used for the top and base of the guitars; for sides
and handles and inlaid designs walnut and cedar
are imported from Mexico. Some *guitarreros*
utilize local pine and fir for the tops of violins and
base viols. The wood is cut with a small saw
and planed to desired thinness. The top and
base are cut from a pattern; the side bands are
soaked and bent into place, being glued to the top
and bottom pieces and held in place with braces.
Strings and metal parts are assembled, and the
instrument is varnished and waxed, ready for the
ultimate consumer. Most *guitarreros* work on a
[439] contract basis for Mexico City or Guadalajara
buyers, and many Tarascans have moved their
trade to the larger towns, mainly Mexico City,
where their products bring higher prices.

The age of the Paracho guitar work is not known.

[TEXT CONTINUES TOP OF P. 69a--ANALYST]

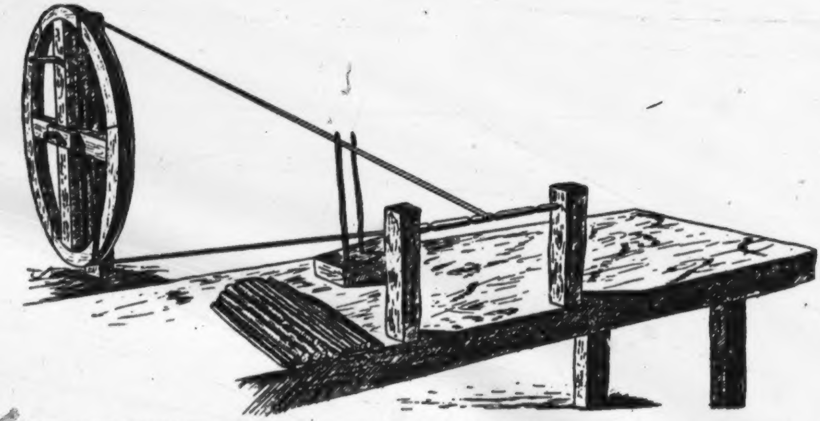

Figure 6.—The wheel lathe, used by most Tarascan cabinetmakers for turning wood. The wheel ranges from 2½ to 4 feet in diameter and is usually turned by a small boy.

322 It is first mentioned as an established industry in the report of 1789 (AGN Historia, vol. 73, f. 344), indicating that it had been introduced for some time.

## LACQUER WORK

386 Modern lacquerwork in Michoacán is closely associated with wood carved with the adz and 322 lathe. Before the Spanish Conquest various gourds (*Lagenaria*, *Cucurbita*, and *Crescentia*) were lacquered with a varnish made from the insect *axin* (*Coccus axin*) and *chía* (*Salvia* sp.) This industry probably centered in the Balsas and Tepalcatepec Basins (Brand, 1944, p. 60) and was extended into the towns near the southern edge of the Sierra, e. g., Peribán and Uruapan. After the introduction of Spanish adz work during the colonial period, lacquer was applied to wooden *bateas* in Peribán, Zirosto, Zacán, Uruapan, and Pátzcuaro. *Bateas* were painted, but not lacquered, in Cucupao (Quiroga) and Santa Fé de la Laguna. Today few Tarascans practice the art, the famous *bateas* of Uruapan being lacquered by mestizos. Some of the turned vases and bowls of Paracho are finished with tung oil and synthetic lacquer purchased in mestizo markets.

## LEATHERCRAFT

282 Probably one of the first native Tarascan crafts stimulated and expanded by the early Spaniards was leatherwork. With the introduction of cattle, Tarascan tanners were able to multiply leather production, which formerly had been based on deerskin, to meet the heavy Spanish demand for saddles, halters, shoes (the famous "*zapatos de baqueta de mechoacán*").[132] Tanning was done with local oak bark, as it is today (AGN Tierras, vol. 83, exped. 13). During the colonial period leather- 282 crafts were centered in the northern Tarascan 438 towns near the pastures and hide supply, and in a few pueblos of the Sierra. The latter included Cherán, Cheranátzicurin, Ocumicho, and Nahuatzen, which was one of the largest tanning centers

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[132] Fray Toribio de Motolinia's statement of 1540 on the Tarascan leather industry is revealing: "*Han deprendido a curtir corambres . . . son buenos zapateros, que hacen zapatos y servillas* [slippers], *borceguíes* [high shoes], *pantuflos, chapines* [wooden shoes with leather straps] *de mugeres; . . . este oficio començó en Michoacán, porque allí se curten los buenos cueros de venados. Hacen todo lo que es menester para una silla gineta bastos y fuste, coraza y sobrecorazas . . .*" (Motolinia, 1903, p. 183). According to the Relación de Michoacán (p. 16) "*cotaras de cuero*," or leather sandals, were made for the *caltzontzin* in pre-Conquest times.

[P. 69-b]

282 438 in the Tarascan area.[153] By the latter part of the 19th century leathercrafts began to decline, and today within the Tarascan area only Nahuatzen (largely mestizo) continues to tan hides and make saddles and other riding equipment.[154] Some Tarascan towns now boast of one or two *zapateros* who make huaraches of imported leather for local consumption. The principal huarache-making centers are now the surrounding mestizo towns: Coeneo, Zacapu, Tinguindín, Los Reyes, Uruapan, Ario de Rosales.

## METALCRAFT

325 **Copper work.**—The Tarascans were probably the foremost metallurgists in pre-Columbian Mexico. They worked gold, silver, and copper. The precious metals were formed into ornaments and disks, which the *caltzontzin* stored on the islands in Lake Pátzcuaro; useful objects, such as axes, *coas*, and spearheads, were made of copper (Relación de Michoacán, pp. 104–109, 122–123). Although definite archeological evi- 325 172 dence is not yet at hand, it is probable that the Tarascans purified native copper and extracted metal from simple oxide ores by smelting (Hendrichs, 1940, p. 327).[155] From cursory inspection of copper artifacts extant in the Museo Regional Michoacano, Morelia, it appears that Tarascans cast copper objects (axheads) in stone molds. After casting, the axes seem to have been further shaped and possibly hardened by hammering.[156] Accidental, rather than deliberate, alloying with tin and zinc probably occurred.

325 316 172 The Tepalcatepec and Balsas Basins contained the ancient copper mines and metallurgical sites. Hendrichs (1940, 1945–46) has described several probable ancient copper mines sites in both the

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[153] AGN Tierras, vol. 83, exped. 12; Zavala and Castello, 1939–46, vol. 7, pp. 361–362; AGN Historia, vol. 73, ff. 178–179. The present northern Tarascan towns of Zipiajo, Azajo, Compania, Tatejero, Tirindaro, Naranja, and Teremendo were all producers of shoes and saddles in the latter part of the 18th and in the 19th century.

[154] Beals (1946, p. 44) states that in 1940 one person from Aranza was tanning hides in Cherán. The old men of Ocumicho remember the manufacture of the black "*zapatos de agujetas*" in their town during the last century. These were sold throughout the Sierra as well as in surrounding mestizo towns.

[155] The Lienzo de Jucutacato, a 16th-century representation of the migration of a people from the Gulf of Mexico into the Tarascan country (where they learned metallurgy) clearly depicts smelting of ore or metal (probably copper) apparently with the aid of charcoal and forced air draft (blowpipes) at the ancient copper center of Jicalán (Jicalán Viejo), 20 km. south of Uruapan.

[156] Microanalysis of Tarascan copperware has not yet been undertaken. Until the results of such analyses are known, it is impossible to make definite statements as to ancient metallurgical methods. Interestingly, the flange shape of the modern Tarascan steel axhead is identical with that of the copper axes found in archeological sites in the Balsas Basin.

[P. 70-2]

325 southern and northern drainages of the lower Balsas (Guerrero). However, the mines of 172 Inguarán in the northern drainage of the lower 316 Balsas in Michoacán were the main source of the metal. Smaller deposits, such as those of Sinagua, were gophered over a wide area. The villages [438] of La Huacana, Jicalán, Sinagua, and possibly Tzatzio appear to have been the chief pre-Columbian copper refining centers.[157]

Needing copper for the manufacture of brass 325 cannon, the Spaniards quickly levied tribute in 438 copper bars on various pueblos in the Balsas and Tepalcatepec Basins. Later, adventurers (in the name of the Crown) took over the native mines [177] at Inguarán, probably introducing European smelting techniques. The main 16th-century Spanish smelting and refining center was Tzatzio, 10 miles each of Ario. This center was located within pine and oak forests, which afforded raw materials for charcoal, and was near the chief highway from Pátzcuaro to the *tierra caliente*. Copper ore and probably native copper was carried by Indians to Tzatzio from the Inguarán mines, which lay 15 miles to the south (AGN General de Parte, vol. 5, ff. 311–313, 1601). Tzatzio was probably an ancient copper center, and the experienced Tarascan metallurgists were retained by the Spaniards to continue with European methods. Before the end of the 16th century the Spanish Crown had established an *asiento* in the Michoacán copper industry, in order to insure a steady supply of metal for the foundaries in Mexico City.[158] Between 1607 and 1614

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[157] The Suma de Visitas, ca. 1540, state that the Spaniards exacted tribute of copper bars from La Huacana and Jicalán (Paso y Troncoso, 1905, vol. 1, pp. 123, 294). Moreover, every 20 days 20 Indians of Coyuca carried copper bars to Mexico (ibid., p. 80). Coyuca, located near the confluence of the Balsas and Cutzamala Rivers, may have been a collecting point for small lots of copper refined in various pueblos of the middle Balsas drainage. At the end of the 16th century copper was still being mined, refined, and made into tools at Sinagua (Mus. Nac., leg. 102, Rel. de Cinguacingo). Tzatzio was one of the first Spanish copper smelting centers in the area, and was probably an old Tarascan center as well (AGI Aud. de México, leg. 256). In passing, it should be noted that the old La Huacana was located near the Inguarán mines. In 1759 the town was destroyed by the eruption of Jorullo, and a new settlement, the La Huacana seen on modern maps, was established near Tamacuaro 15 miles west of the old site (AGN Historia, vol. 73, ff. 393–394)

[158] Under the *asiento*, or contract, system, control of various industries was farmed out to private individuals. In the case of the copper industry of Michoacán, administrative control was purchased from the Crown for 6-year periods. The administrator was obliged to furnish the Government a stipulated amount of copper annually at a fixed price. In 1589 an official survey was made of the copper industry in Michoacán. The surveyor recommended that owing to forest depletion around Tzatzio and the consequent difficulty in charcoal supply, refining operations should be moved to Ario, near abundant pine forests (AGI Aud. de Mexico, leg. 256). It is doubtful that this move was made, since in 1607 copper was still being refined at Tzatzio (Zavala and Castelo, 1939–46, vol. 6, p. 166).

[P. 70b]

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official copper refining operations had shifted 20 miles northward to Santa Clara (Villa Escalante), which has remained the copper center of Michoacán to this day (AGN Minería, vol. 22, exped. 3). In addition to copper bars for the royal artillery, the colonial administrators established the manufacture of caldrons and other copper vessels, which they sold to all parts of New Spain (AGN Historia, vol. 73, ff. 389).[159] Colonial copper production, however, was not limited to the royal refineries at Santa Clara, for as late as 1789 braziers were still being made by native coppersmiths at Jicalán (AGN Historia, vol. 73, f. 366). Moreover, some copperwork was done in Pátzcuaro throughout the colonial period.[160]

Today the sole survivors of the former Tarascan copper industry are some 30 mestizo coppersmiths in Santa Clara, where the renowned *casos* (caldrons), vases, and bowls are still manufactured. Ore or native copper is no longer refined; instead, scrap copper is purchased, melted down, and cast in earthen molds. Sixteenth-century hand bellows are still used to force an air draft; charcoal is employed for fuel. The cast vessel is finished and hardened by alternate annealing and hammering.

**Ironworking.**—With its concomitant tools (bellows, hammers, anvils, tongs, etc.), ironworking was introduced into Tarascan economy early in [177] the 16th century. Curiously, one Sierra village, San Felipe de los Herreros, became the foremost ironworking center of Michoacán during the colonial period and the early 19th century. In 1644 bridle bits, spurs, locks and keys were fashioned and marketed in surrounding Spanish and mestizo towns (Basalenque, 1886, vol. 1, p. 467). As late as 1851, 68 families (practically the entire town) were professional smiths, supplying the countryside with plow tips, hoe blades, axheads, woodworking tools, etc. In 1946 three

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[159] During the 17th century Tarascans from all parts of Michoacán were forced to work in the Inguarán mines and the *fundiciones* at Santa Clara. Most of the *fundidores* came from the *tierra caliente* and from the *tierra fría* towns of Zirosto and Patzcuaro (Zavala and Castelo, 1939–46, vol. 6, p. 166; vol. 7, p. 240). In 1789 there were 8 copper refineries at Santa Clara, each operated by 30 to 40 men (AGN Historia, vol. 73, f. 389).

[160] The Relación de Pátzcuaro of 1581 (p. 47) mentions "*herreros y calderos.*" Basalenque (1886, vol. 1, p. 451), writing in 1644, states that copper bells were made in Pátzcuaro. As late as 1862 (Romero (1862, p. 7) writes of Pátzcuaro coppersmiths, who were refining ore from Inguarán and Churumuco. Several new copper deposits in Michoacan were exploited during the last quarter of the 18th century, e. g., the mines of Apupato, near the old site of Urecho (AGN Historia, vol. 73, f. 366) and those of Chirangangueo, near Tuzantla, south of Zitácuaro (AGN Minería, vol. 62, exped. 1; Martínez de Lejarza, 1824, p. 92).

[P. 71-a]

325 old smiths, who work at their trade only part time, represented the remnant of a once thriving home industry.

The former source of metal for the San Felipe [439] smiths is problematical. According to a local informant, during the 1880's "*planchas de hierro*" were brought in from Cotija, a muleteer and trade center having close connections with the *tierra caliente* and the Sierra of Guerrero. This information points to Coalcomán in the Sierra Madre del Sur of Guerrero as the principal source of iron. Other ironworking towns of Michoacán include Irimbo and Nahuatzen. Mestizos in the latter pueblo fashion knives and machetes.

## STONECUTTING

Stonework among modern Tarascans is limited 324 to approximately 12 metate makers in Turícuaro. [438] Formerly this village was noted throughout Michoacán for the high-quality *metates* (iauáɹi), *manos* (poɹékua), and *molcajetes* (šúmatakua) carved from a fine-grained andesite (¢akápu amákiti, or "good stone"), found near the summit of the composite volcano Kaɹákuaráni (Cerro de la Corona) nearby. Since the introduction (ca. [256] 1925) of the engine-powered nixtamal mills in mestizo and larger indigenous towns, demand for new *metates* has sharply declined.[161]

*Metates* and *molcajetes* are roughly shaped at the quarry on Kanákuaráni and are carried down to the pueblo on burro for finishing in the stonecutter's house. Stone is worked with steel tools, [412] e. g. the pick (píkua) and sledge hammer (píkua-k'éri), and is finished with a polishing stone (janámu). Several sizes of *metates* are made and sold to traveling merchants who pass through the town.

## TRADE AND TRANSPORT

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441 The structure of trade among the Tarascans is not dissimilar to that of most Indian groups of central Mexico. Although every settlement has at least one store where general merchandise can be purchased, most trading is done at the *tianguis*, or market, held regularly in the larger towns. Throughout the area professional traders—*huacaleros* (who carry merchandise on their backs), *arrieros* (who haul products on the backs of burros), and lately, wholesale buyers from the

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[161] According to local informants, in 1912 practically every family in the village made *metates*. Since that time most of the villagers have turned to woodwork (mainly *bateas*).

[P. 71b]

438
441 large mestizo towns (who ride in trucks and busses)—all serve as distributing agents.

443 **The market** (**uaŝájpikuaru**, or "**the place where people sit**").—Sunday is the most important
438 market day for the Tarascans.[162] Large groups of Indians from neighboring pueblos flock to the regular markets held in the large mestizo towns within or on the edge of the Tarascan area. Since colonial times Paracho has been the largest Indian commercial center of the Sierra. To the south Los Reyes and Uruapan are the exchange centers for *tierra caliente* and *tierra fría* merchandise.[163] A lesser number of Indians attend the northern market towns: Zamora, Tingüindín, Purépero, Zacapu, and Chilchota (the commercial center for the La Cañada pueblos). Generally speaking, each large Sunday market draws upon a certain Indian area defined by a walking or riding distance of one day or less (map 21). On occasion, however, the Pátzcuaro or Uruapan *tianguis* is visited by Indians who live more than 1 day's travel away. In the Sierra often the entire family attends the regular market, leaving Saturday with handicrafts or farm products (usually fruit, chickens, or eggs) packed on burros, and arriving at the plaza at night.[164] Sunday morning is a time of brisk trading. By afternoon most of the traders have sold their wares, purchased supplies, and have departed for their respective pueblos. The Lake Pátzcuaro fishers got to market in boats, carrying fish and vegetables to Pátzcuaro, Erongarícuaro, and Quiroga to trade for maize, wheat, and firewood.

Lesser markets are regularly held in a few smaller Indian towns. For example, there is a Sunday market at Charapan, attended by people from Cocucho, Urapicho, Corupo, San Felipe, and Nurío. On Saturdays and Mondays there is some commercial activity in Cherán, as professional traders pass through the town going to and coming from the Sunday Uruapan market (Beals, 1946, p. 80). Again, on Thursdays

[Text continues top of p. 73a — Analyst]

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[184] [162] An important exception is the Pátzcuaro market held on Fridays and Sundays. A minor fish market occurs also on Tuesdays.

[163] Formerly Peribán was one of the largest *tierra caliente*—*tierra fría* markets in Michoacán, but since the close of the colonial era it has ceded most of its trade to Los Reyes nearby. Important fiesta markets are still held in Peribán however.

[494] [164] Within the last 8 years the pueblos along the Uruapan highway have ridden busses or taxis to market. Since 1943 similar transport has been extended to Charapan, Zirosto, and intermediate pueblos. Moreover, during the dry season lumber trucks haul loads of men and women from some Sierra towns to mestizo markets.

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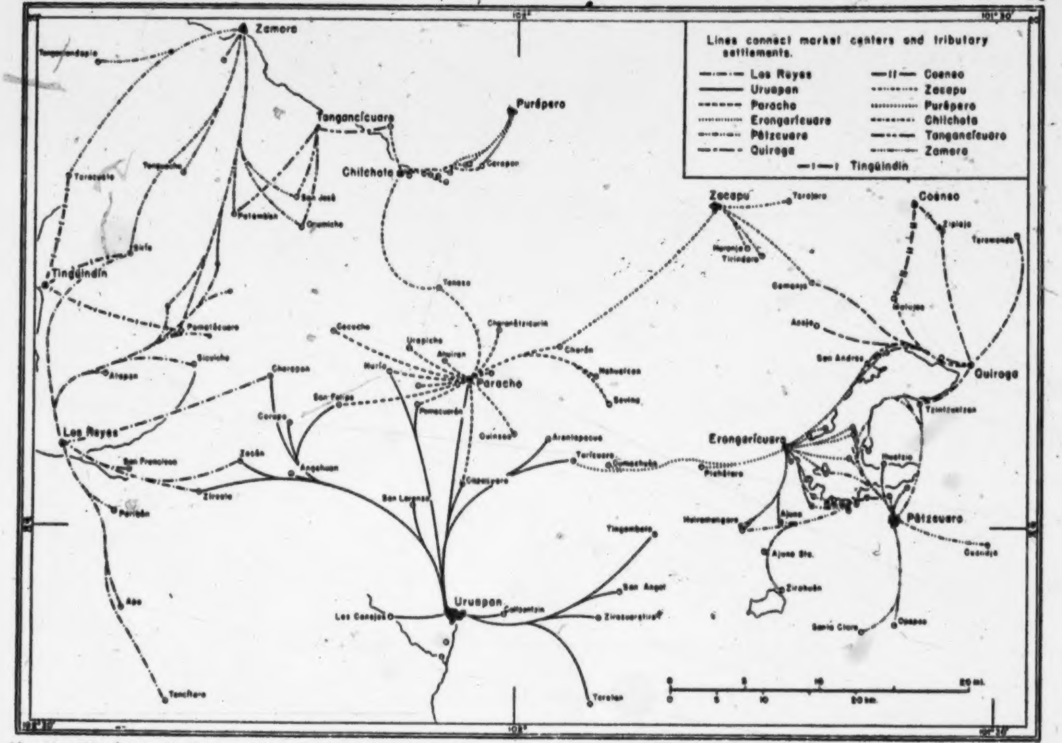
[P. 72]


Lines connect market centers and tributary settlements.
Los Reyes
Uruapan
Paracho
Erongarícuaro
Pátzcuaro
Quiroga
Coeneo
Zacapu
Purépero
Chilchota
Tangancícuaro
Zamora
Tingüindin
Zamora
Tangancícuaro
Purépero
Chilchota
Tingüindin
Los Reyes
Pomatácuaro
Sicuicho
Atapan
Charapan
Corupo
San Felipe
Angahuan
Zacán
Zirosto
San Francisco
Periban
Apo
Tancítaro
San Lorenzo
Capácuaro
Nurío
Cocucho
Urapicho
Ahuirán
Paracho
Pomacuarán
Quinceo
Tanaco
Cheranátzicurin
Cherán
Nahuatzen
Sevina
Arantepacua
Turícuaro
Comachuén
Pichátaro
Zacapu
Tirindaro
Naranja
Comanja
Azajo
San Andrés
Coeneo
Zipiajo
Teremendo
Quiroga
Tzintzuntzan
Erongarícuaro
Huiramangaro
Ajuno
Ajuno Sta.
Zirahuén
Pátzcuaro
Cuanajo
Santa Clara
Opopeo
Tingambato
San Angel
Uruapan
Los Conejos
Caltzontzin
Ziracuaretiro
Taretan
San José
Ocumicho
Patamban
Tarecuato
Sirio
Corupo
0 5 10 20 mi.
0 5 10 20 km.
102°
101°30'
102°30'

MAP 21.—Distribution of markets and their local trading territory in the modern Tarascan area. Black circles and town outlines represent markets. Many non-Tarascan towns tributary to the main markets are not indicated.

[P. 73-a]

443 438 professional traders gather at Patamban to buy pottery for the various Sunday markets.

Besides the regular weekly markets, in practically 443 every village lively trading accompanies the 438 annual religious or semi-religious celebrations. In 796 some instances such markets are large enough to be termed fairs. Commercially, the most important of the annual fiestas is the pueblo's saint's day, attended by traders and villagers from miles around. Other fiesta markets occur during the Corpus Christi, Easter, and Christmas celebrations. Often a particular village, such as San Juan Parangaricutiro, holds special religious (and commercial) festivals to honor a special saint or miraculous event.[165]

437 Trading in the market is done mainly on a monetary basis. Little outright bartering takes place. An interesting exception occurs at Erongarícuaro, where wives of fishermen exchange baskets of fresh or dried fish for piles of firewood carried in from the Sierra. Another instance of barter takes place at the Patamban market; there, women from the Pamatácuaro *ranchos* trade tamales for pottery and fruit.

443 The market takes place in the town plaza, and when the number of traders is exceptionally large, some sellers are crowded off into adjoining streets. Each vendor pays the municipal authorities the [651] *piso de plaza*, or tax for the use of a small selling space on the sidewalk. By custom, stalls are segregated according to the type of article sold, pottery being dispensed in one section of the plaza, foods in another, etc. (pl. 14). (See illustration of Chilchota market *in* Beals, 1946, p. 84.) Except in special markets, such as Patamban, the number of merchants of fruit and vegetables exceeds all others. (See Beals, 1946, p. 82.) Moreover, in the large towns professional mestizo vendors of factory-made clothing, hardware, etc. are numerous, while the Indians selling handicrafts are relatively few.[166] The Pátzcuaro, Erongarícuaro, and Paracho markets, on the other hand, are composed of a much larger percentage of native traders.

444 **The village stores.**—Almost without exception every Tarascan village boasts of at least one store

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[165] Of interest are the Palm Sunday (*Ramos*) fairs held in Peribán, Zamora, Uruapan, and Pátzcuaro. Exchange of *tierra caliente* and *tierra fría* products is particularly significant at these markets.

[443] [438] [166] At the *Ramos* fair at Peribán (April 14, 1946) at least three-quarters of the selling space was occupied by tropical fruit vendors and sellers of factory-

[P.73-b]

444 which handles mainly staple food imports (salted dried beef, dried fish, salt, piloncillo, lard, beans, and wheat flour) and beverages (soft drinks, beer, and hard liquors). A small assortment of canned goods can be purchased in the stores of the larger towns. Often other items, such as cigarettes, kerosene, and metal household ware, are carried. In the small villages stores are customarily operated by well-to-do Tarascan families, often by the wife and children, while the man farms.[167] In the large pueblos the storekeepers are usually mestizos who have moved in from neighboring towns.[168] [177] Significantly, the infiltration of Spanish-speaking storekeepers into indigenous towns often represents one of the initial steps toward hispanicization of the native population.[169]

**The professional traders.**—The *huacalero* (inspikuɹiri, or "one who trades") represents the last 443 vestige of the ancient Indian carriers (*tamemes*), formerly important agents of distribution throughout Mexico. Few such traveling merchants, each of whom carries his wares in a wooden crate (*huacal*, kópaɹakua) tied to his back, remain; the majority have been displaced by burro and motor transportation. As late as 1900 large 443 numbers of Tarascan *huacaleros* from many 439 Sierra villages carried handicrafts into the Balsas Basin, the coast of Guerrero, and Colima and returned with tropical fruit, salt, and cheese. Today about 15 *huacaleros* operate out of Pamatácuaro, carrying locally made wooden spoons and *bateas*, Patamban pottery, *morrales* from

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[438] made goods from Zamora, Guadalajara, Morelia, and México. Regional handicrafts were represented as follows:

[443]

| Article: | *Origin* | *Vendors (number)* |
|---|---|---|
| Blankets | Charapan | 10 walking vendors. |
| Blankets | Jiquilpan | 1 stall. |
| Rebosos | Paracho | 1 stall. |
| Women's belts | Nahuatzen | 1 stall. |
| Straw hats | Apo | 1 stall. |
| Agave rope | Tarecuato | 2 stalls. |
| Pottery | Patamban | 12 stalls. |
| Pottery | Santa Fé | 1 stall. |
| Pottery | San Juan Tlaquepaque (Jalisco). | 1 stall. |
| Wooden tops | Paracho | 1 stall. |
| Wicker baskets | Tangamandapio | 1 stall. |
| Huaraches | Los Reyes | 3 stalls. |
| Huaraches | Peribán | 1 stall. |

[167] Cherán, as Beals points out (1946, p. 79), is unique in that, although it is the largest Tarascan town, the storekeepers are Tarascan.

[168] For example, although Tarecuato is almost wholly native in speech, its three or four stores are operated by mestizos. Merchants of Paracho, Patamban, and Nahuatzen are all mestizos.

[609] [169] Apart from its distributive function, the village store (mestizo or indigenous) frequently serves as the only readily accessible public place where a stranger may introduce himself and ask questions about the town. Except in the municipal seats, the town officials, all of whom hold nonremunerative posts, are rarely found in the *jefatura*, or town hall

443 Tarecuato, and medicinal herbs of the Sierra to
439 Colima, most parts of Jalisco, the *tierra caliente* of
Michoacán and Guerrero. Tropical fruits make
up most of the return load. A few professional
carriers haul pottery from Santa Fé to Quiroga
and, at times, to Morelia. *Huacaleros* from other
towns have practically disappeared.

Although they do not use the large *huacal*,
443 many women of the Sierra devote most of their
438 time to carrying various products to the surrounding
mestizo markets. For instance, the
women of the Pamatácuaro *ranchos* (Uringuitiro,
Tierra Blanca, etc.) carry *ocote* splinters, wooden
spoons, and tamales to Zamora, Chilchota,
Patamban, and the Lake area.[170] Again, some
women of Corupo collect eggs and chickens from
surrounding towns and take them to the Sunday
market at Uruapan.[171]

The *arrieros*, or the "mule-skinners," in spite
492 of inroads of motor transportation, still account
for a large part of the interregional trade in
443 Michoacán. Mule and burro transport came into
use on a large scale in New Spain after the forced
[177] services of the *tamemes* were restricted in the last
half of the 16th century (Spain. Law, Statutes,
etc., Lib. VI, tit. 12, ley 6–10). Indians, however,
were slow to adopt animal transport. Even in
the latter part of the 18th century the majority
of the muleteers operating in Michoacán were
Spaniards or mestizos, who hired Indians as
helpers. By 1789 some Tarascans owned mule
or burro trains in Cherán, Urapicho, Angahuan,
Charapan, and Pomacuarán (AGN Historia, vol.
[439] 73). Even today the greater part of the *arrieros*
operating in the Tarascan area are mestizos with
headquarters in some of the northern towns.

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[170] During such trips the women of these ranches may be gone from their households for 3 or 4 days. In their absence housework is done by the children or the men, who rarely travel.

[171] Such rounds may last a week. The women visit Charapan, Zacan, Ziristo, Pamatácuaro on certain days, returning to Corupo by Friday, and arrive at Uruapan Saturday evening. Eggs are carried in a small crate held on the back with the *ayate*. Six or seven chickens are tied on the top of the box, and, in addition, many women carry one or two fowls in their arms.

443 492 439 Like the *huacalero*, the *arriero* in the Tarascan area has functioned chiefly as a commercial intermediary between the *tierra caliente* and the *tierra fría*. During the colonial period, however, some mule skinners extended operations into the northern mining districts. Moreover, various mestizo towns in Tarasca became *arriero* centers—strategic points along the main routes where mule trains met, animals were sold and traded, supplies purchased, and merchandise exchanged. Such towns became residences of many muleteers. A series of these centers lies within the *tierra caliente* and includes Apatzingán, Huetamo, and Coyuca. Another series is located within the *tierra templada:* Uruapan, Ario, Tacámbaro. Other centers are found in the *tierra fría:* Cotija, and, formerly, Parangaricutiro and Jiquilpan. Most of these towns still function as *arriero* centers, and although motor transportation is continually replacing the mule and burro, some of them will continue to serve as way stations for fuel and repairs and collecting points for products carried out by trucks.

443 494 Since the construction of motor roads in many parts of Tarasca, former *arrieros* and *huacaleros* have begun to use public busses and semipublic trucks to transport merchandise. Pottery vendors, for example, stand for hours along the highway, hailing through-trucks to take them and their goods to Guadalajara, Morelia, or Mexico City. Moreover, heavy sugar and *cascalote* trucks now operate from Uruapan, Pátzcuaro, and Los Reyes into the *tierra caliente*.

442 The wholesale buyers represent a modern type of merchant, who with the advent of road construction have begun to penetrate into the Tarascan area. Grain dealers from Morelia, Zamora, and Uruapan now run their trucks into the Sierra towns to buy surplus wheat. Again, many woodworkers in Paracho are on contract to city wholesalers for turned work and guitars, which are collected at intervals in trucks or passenger cars.

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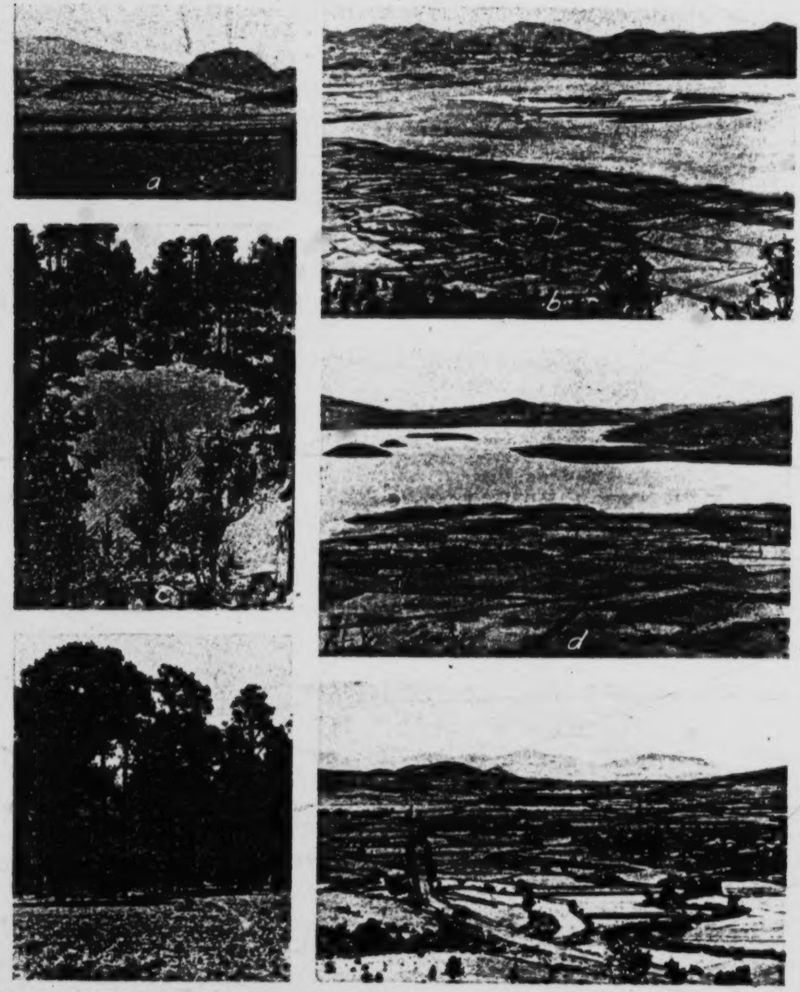

PLATE 1.—Physical landscape. a, Portion of a Sierra basin near Arantepacua. b, Southwestern part of Lake Pátzcuaro; Jarácuaro Island and newly formed Pastora Island, upper center. c, Cultivated floor of cinder cone crater near Charapan. d, Lake Pátzcuaro, looking northward; note volcanic islands in middle of lake and the Urandén Islands immediately off shore. e, Mixed pine-oak forest at edge of maize field, Charapan. f, La Cañada, looking westward, or down valley.

[End-plate 1]

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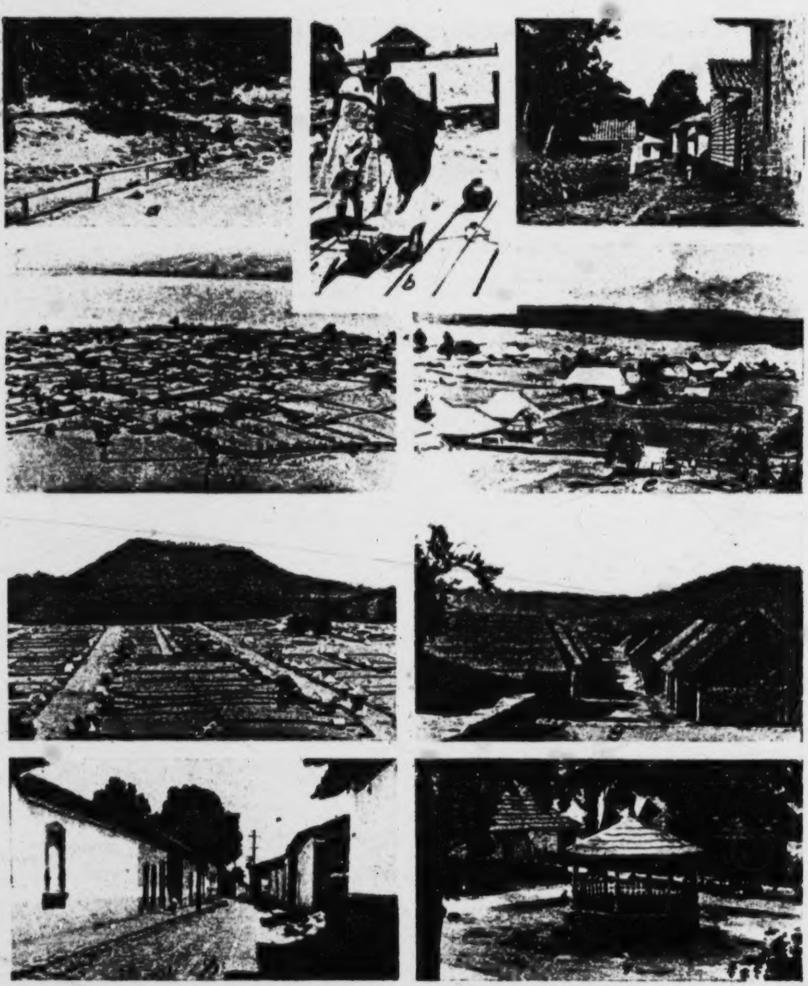

PLATE 2.—Water supply and settlement. *a*, Wooden aqueduct at Pamatácuaro, which brings water from the local spring (center) to the outskirts of town. *b*, Hoisting water from one of the public wells in Charapan. *c*, Street in Ihuatzio, Lake Pátzcuaro. *d*, Panorama of San Jerónimo on Lake Pátzcuaro, showing compact assemblage of adobe structures. *e*, Partial view of Zacán near Parícutin Volcano (background), showing grid street pattern, scattered dwellings, and large lots. *f*, Los Conejos (San Juan Nuevo), founded in 1944 to house refugees from destroyed San Juan Parangaricutiro. Nearly all trojes were transported from old San Juan and reassembled on the new site. *g*, Street scene, Charapan (Sierra). *h*, Street scene, Tiríndaro, Zacapu Basin. *i*, Plaza at Charapan.

[End-plate 2]

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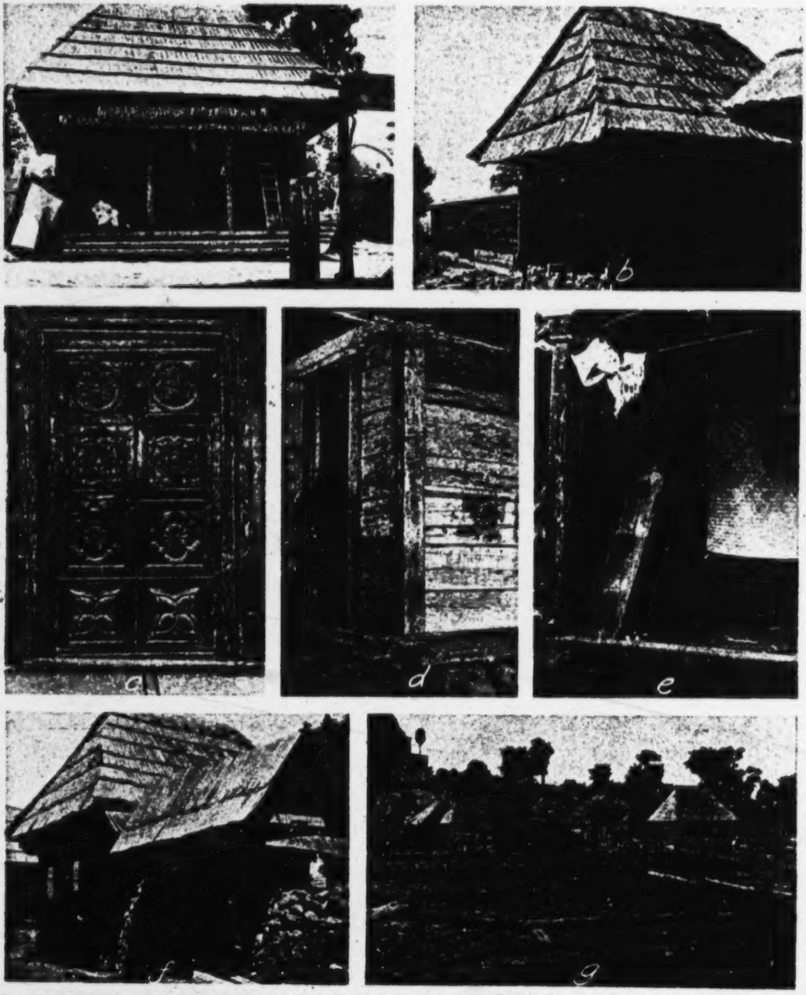

PLATE 3.—House types. *a*, Front view of *troje* from inside house lot, Quinceo. *b*, Back view of *troje* from the street, Sicuicho. Note the plank wall ([illegible]) to left of house. *c*, Elaborately carved door, Charapan. *d*, Planks housed in L-shaped cornerpiece, Comanja. *e*, Notched plank ladder leading to loft of *troje*, Charapan. *f*, Roofed gate, Sicuicho. *g*, Trojes at Pamatácuaro. Note rail fences.

[End-plate 3]

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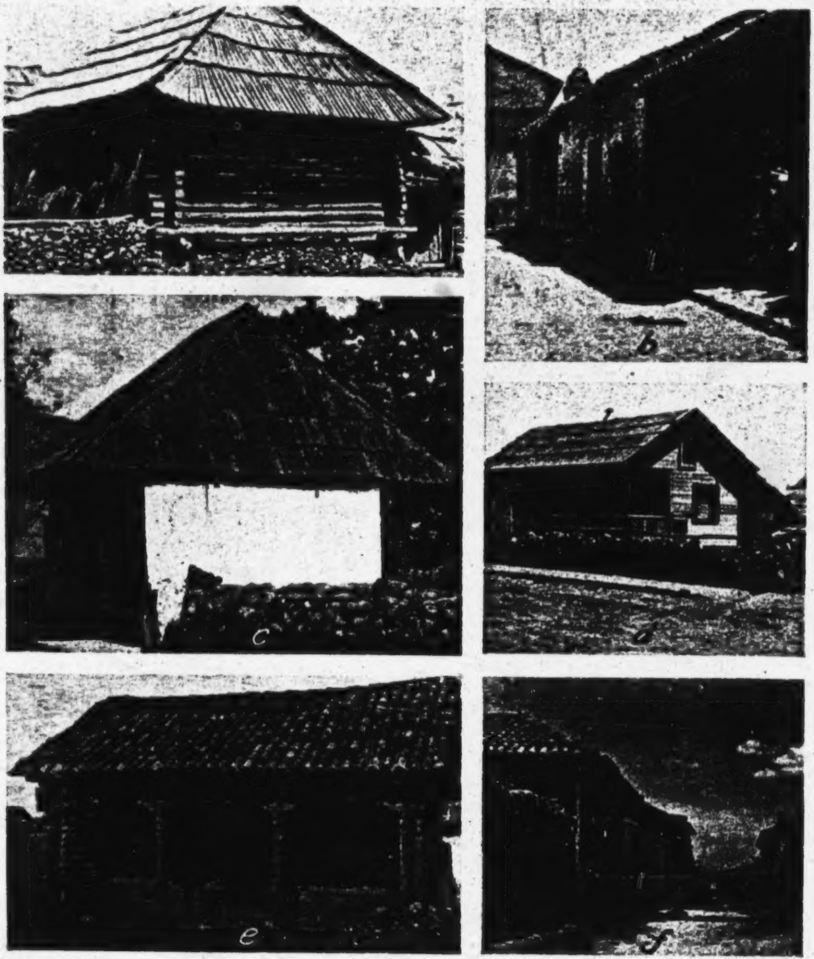

PLATE 4.—House types. a, Old log structure, [illegible]. b, Old wooden troje, Tirindaro. c, Adobe house at Apo. The floor plan and roof are similar to those of the plank troje. d, Wooden house at Caltzontzin, the refugee pueblo east of Uruapan. These new structures are North American in appearance. e, Abandoned adobe two-sided house, San Jerónimo. f, Street scene, San Jerónimo. The house at left with the high [illegible] front is often seen in Lake Pátzcuaro towns.

[End-plate 4]

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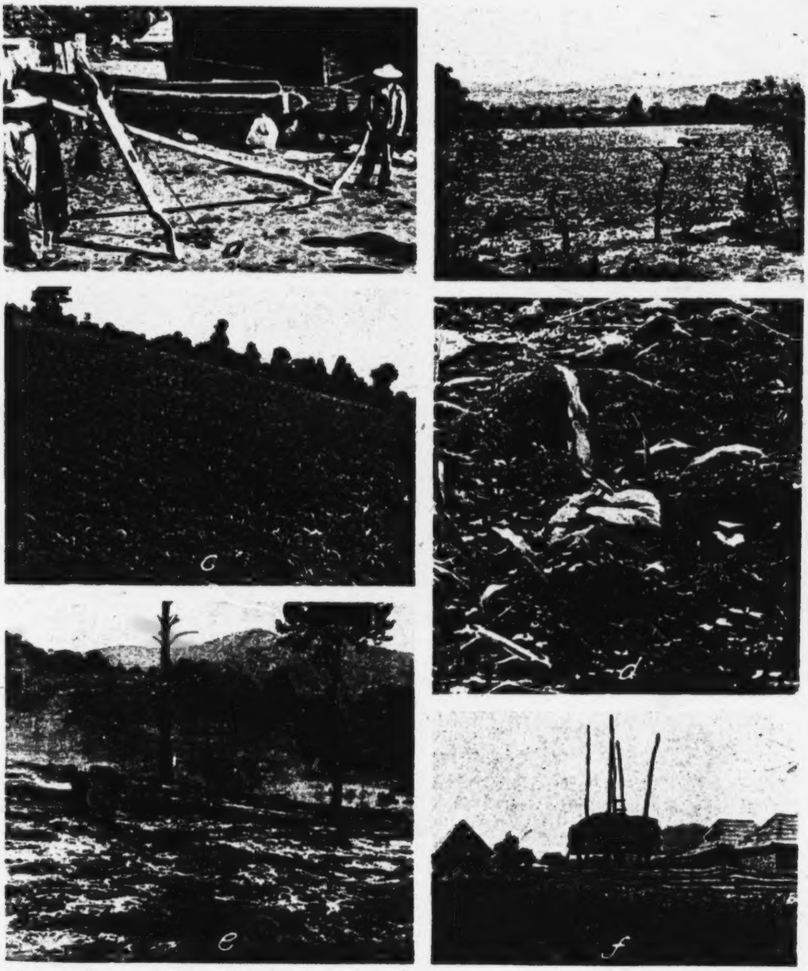

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PLATE 5.—Maize culture. *a*, The Egyptian plow, still widely used in Mexico (Nurio). Note straight steel tip (*reja*) which slips over endpiece of plow yoke and goad near end of tongue; leather strap used to fasten yoke to horns of oxen. *b*, Planting maize near Caltzontzin. The first plow, which opens the furrow, is followed by two small boys, who drop seeds at regular intervals. The second plow covers the seeds. *c*, Contour plowing near Cuanajo. Field of young maize. *d*, Hill of maize and beans in hoe land near Chilchota. Plants are about 1 week old. *e*, Newly burned *desmonte* near Apo. Note wood ash, which will be mixed with underlying soil. *f*, Platform on which maize fodder (*rastrojo*) is stored, Zacán.

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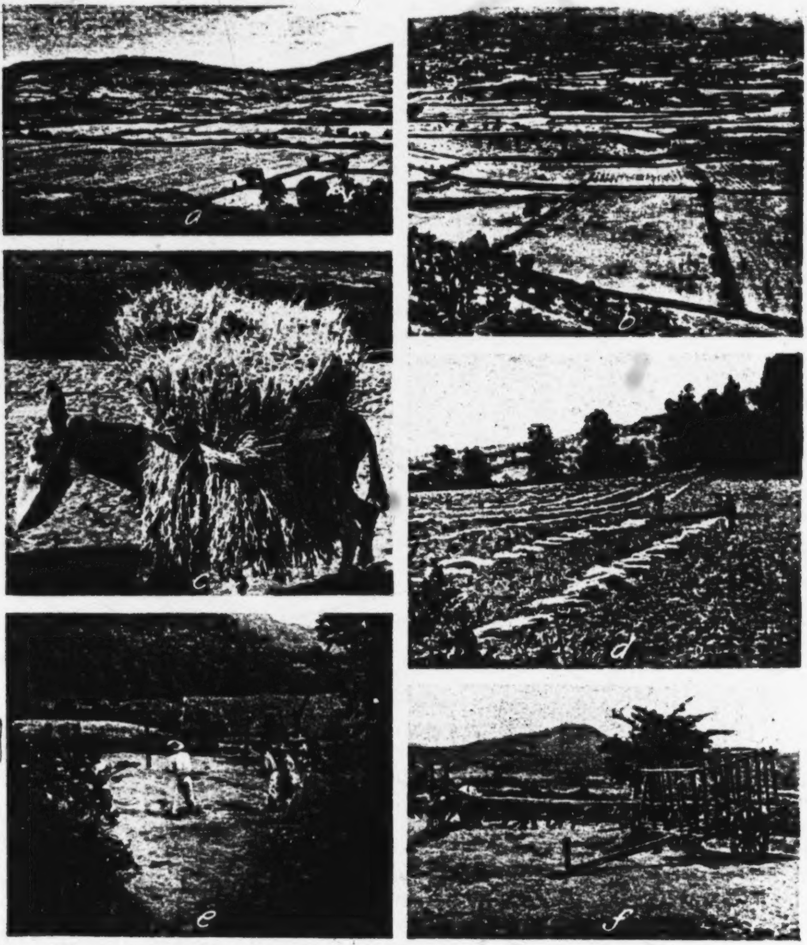

PLATE 6.—Wheat culture. *a*, Irrigated wheat fields near Chilcota, La Cañada. *b*, Temporal wheat fields on the northern edge of the Sierra, near Tiríndaro. *c*, Method of hauling wheat bundles to the threshing floor, Apo. *d*, Cutting wheat with the sickle, near Pichátaro. *e*, Threshing wheat with flails, Sirio. *f*, Threshing wheat in the era with horses, at Comanja. The carreta (right) is used in many parts of Tarasco to haul wheat bundles and maize fodder.

[End-plate 6]

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PLATE 7.—Horticulture and domestic animals. a, Large plowed ekuáru, San Felipe. Note animal pen adjoining troje. b, Small patch of cabbage in house lot, San Felipe. c, Vines of chayote in ekuáru, Tanaquillo, La Cañada. d, Irrigated vegetable plots along west shore of Lake Pátzcuaro, near Arócutin. e, Ditch well and poles (t'sparatirakuecu) used to lift water from ditch to irrigate fields. Near Uricho. f, Sheep grazing in harvested maize field, near Tanaco. g, Herding sheep near summit of Cerro de Patamban. The flock is from the rancho of Uringuitiro. h, Bee hives in house lot, Azajo.

[End-plate 7]

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[End-plate 8]

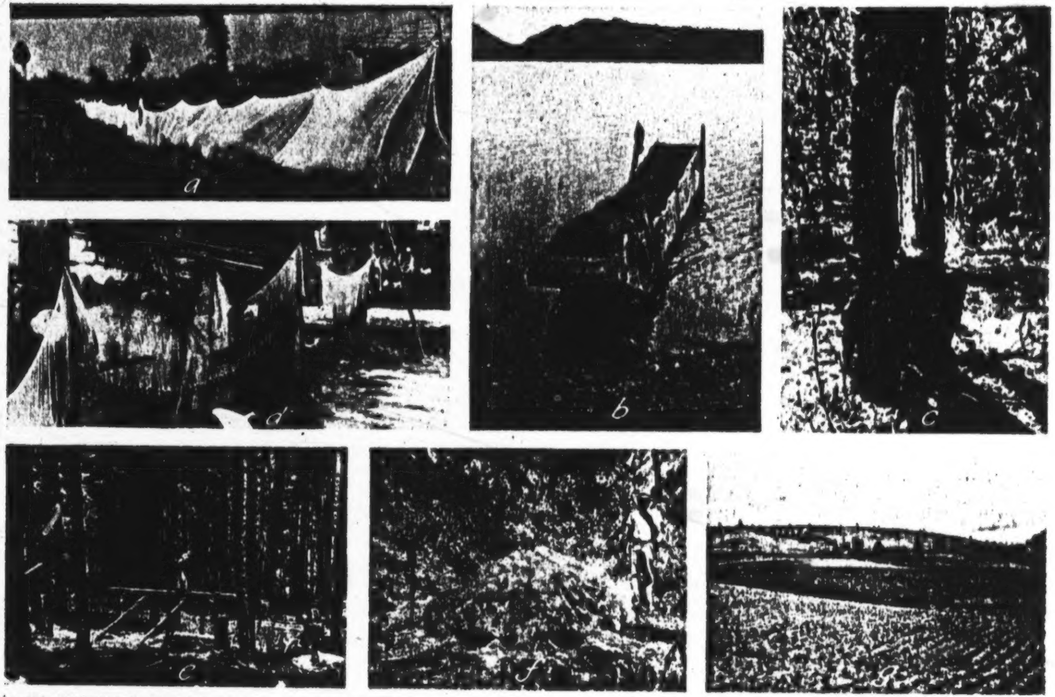

PLATE 8.—Fishing and forest exploitation. *a*, Chichorro nets drying on La Pacanda Island, Lake Pátzcuaro. *b*, The small icháruta dugout, Lake Zirahuén. Note paddles attached to rear of canoe. *c*, Typical method of gathering resin (near Charapan). The resin flows into the clay vessel attached to the tree. *d*, The small cármekua, or gill net, drying (Janitzio). *e*, Sawing planks in mixed pine-fir forest, southern slope of Cerro de Patamban, near Pamatácuaro. *f*, Burning charcoal near Capacuaro. *g*, Cut-over land between Sevina and Turicuaro, now in maize fields and pasture.

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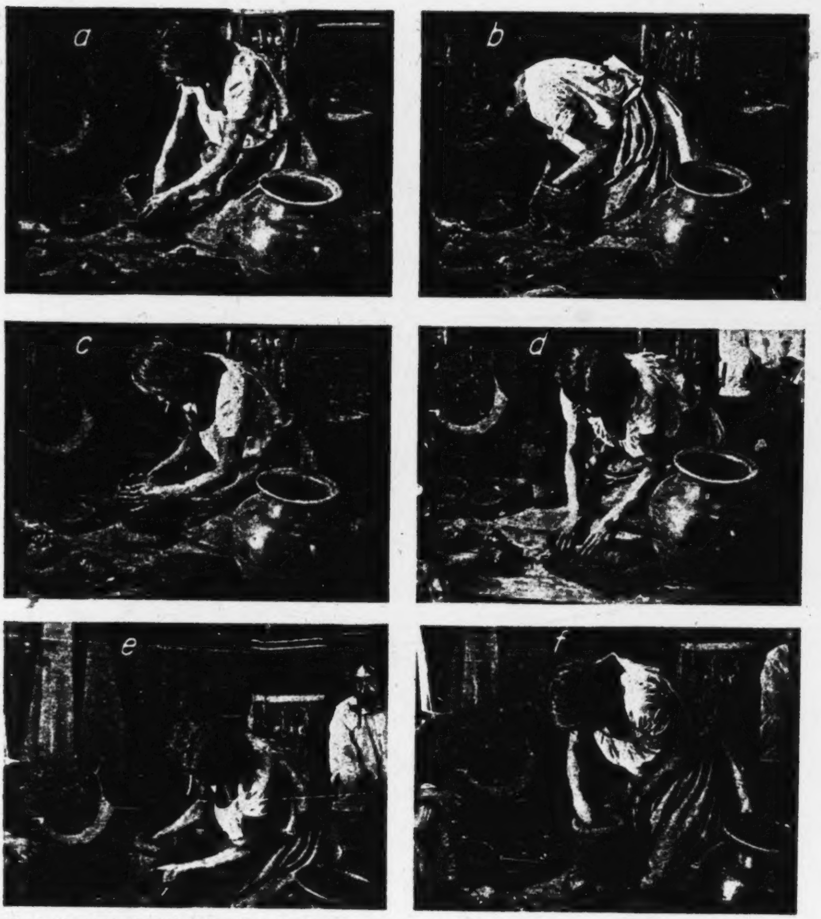

PLATE 9.—Ceramics: Pottery making at Cocucho. *a*, Vessel being started from a single daub of clay. The vessel is worked on top of the mouth of a broken olla. *b* and *c*, Bottom portion of vessel being shaped. *d*, Piece of clay being rolled out on board. *e* and *f*, Sides of vessel are built up by adding pieces of rolled clay.

[End plate-9]

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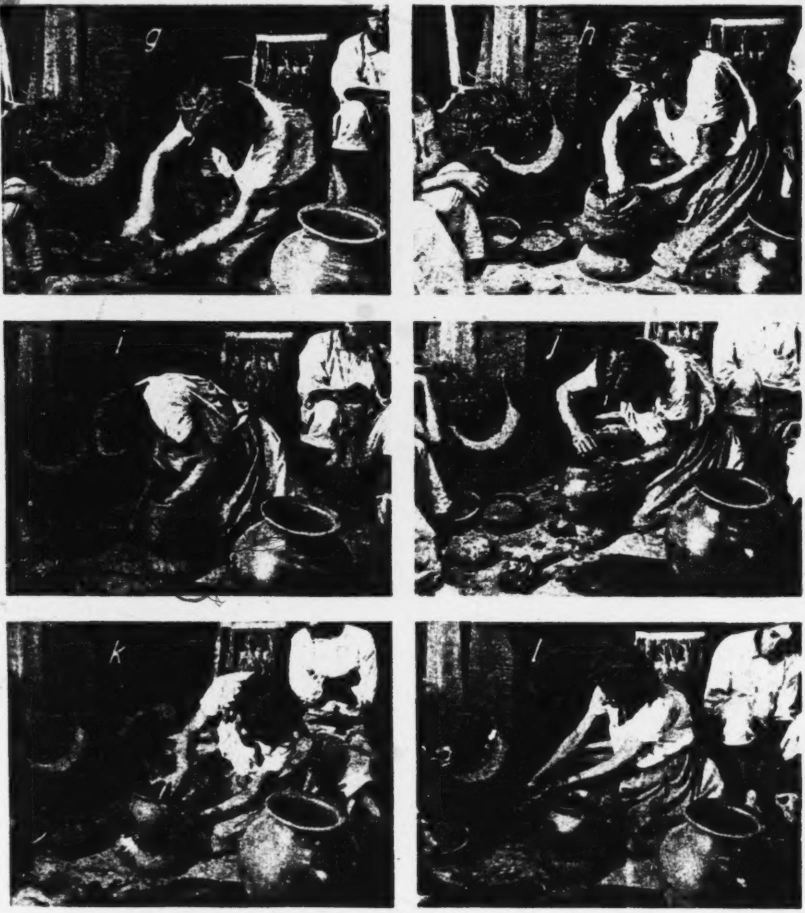

PLATE 10.—Cocucho: Pottery making at Cocucho (continued). g and h, Rolled pieces of clay are worked into sides of vessel. i, Sides of vessel are smoothed with corncob. j and k, Lip of vessel being shaped. l, The finished olla. The vessel was made in about 25 minutes.

[End-plate 10]

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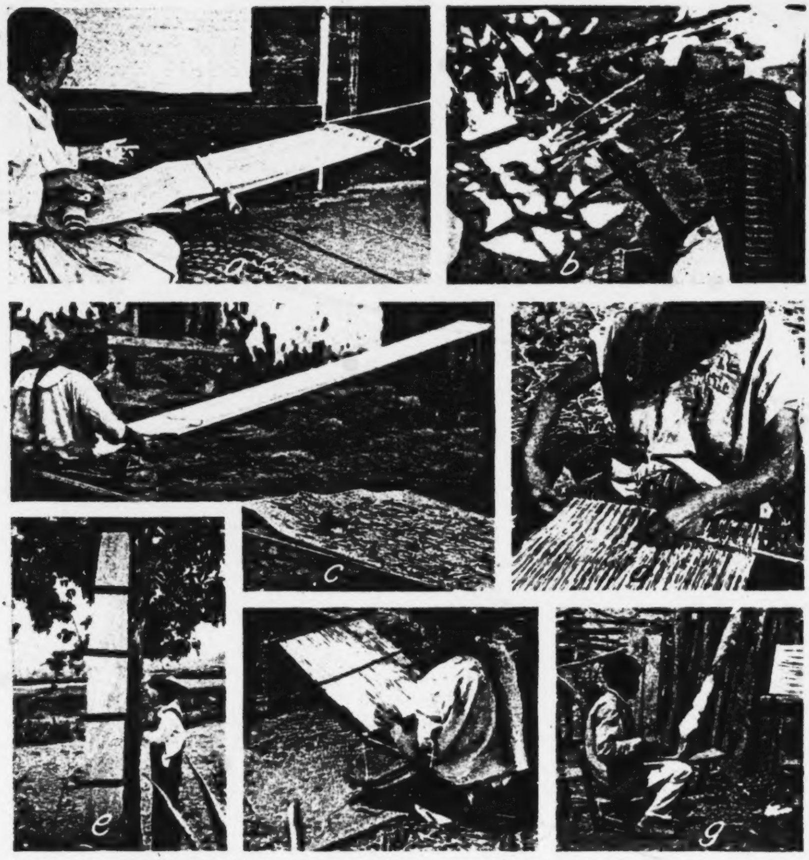

PLATE 11.—**Textiles.** *a*, Weaving cotton cloth for aprons on the native belt loom, Charapan. *b*, Weaving women's belts (*fajas*), Azajo. The belts vary in width from 1½ to 3 inches, carry various designs, and each is of several brilliant colors. *c*, Weaving men's sashes of white cotton thread, Janitzio. Č'arári is drying on the petate, lower right. *d*, Weaving a morral of agave fiber, Tarecuato. *e*, Stretching woven pieces of agave fiber, Tarecuato. Each piece is doubled over to make a morral. *f*, Weaving agave fiber on the belt loom, Tarecuato. *g*, Spinning agave fiber with the malacate, Tarecuato.

[End-plate 11]

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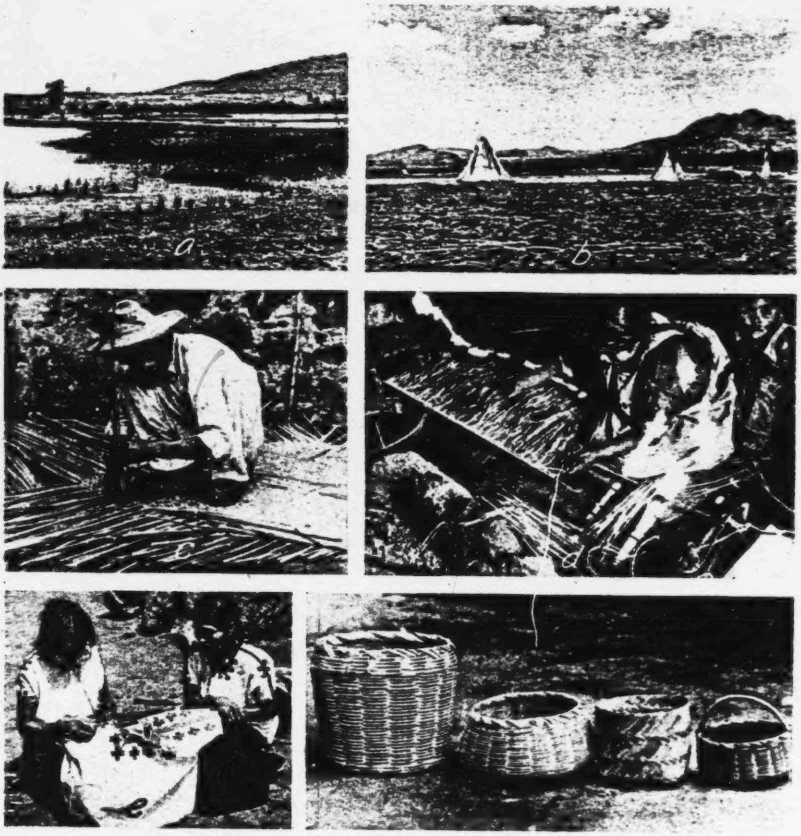

PLATE 12.—Textiles. a, A milpa of tule along the shore of Lake Pátzcuaro, between San Jerónimo and San Andrés. Many petate makers own their own milpas, but sometimes portions of the brakes are leased to tule sellers, who harvest the reeds and distribute them to various villages around the lake. b, Harvesting tule, Jarácuaro Island, Lake Pátzcuaro. After partially drying in the sun, the reeds are bundled into manojos and stacked in shocks. c, Weaving petates, Ihuatzio. Note the wooden mallet on the mat near the man's hands. d, Making capotes, Arantepacua. Work is done inside the kitchen. Note the hearth, lower left. Palm leaves are kept moist by dipping them in the batea of water at left. e, Embroidering a huipil, or blouse, Tarecuato. f, Baskets woven at Ihuatzio. The large one (left), called [illegible], is used to carry bread and fruit. It is usually transported on the back in the ayate. The flat round basket is called t'akiáta and is used to carry fish and tamales. The twilled basket is a tlacal (the Tarascans call it "[illegible]") for tortillas. The handled basket at the right (simply named "canasta") is for carrying eggs, piloncillo, and often fish.

[End-plate 12]

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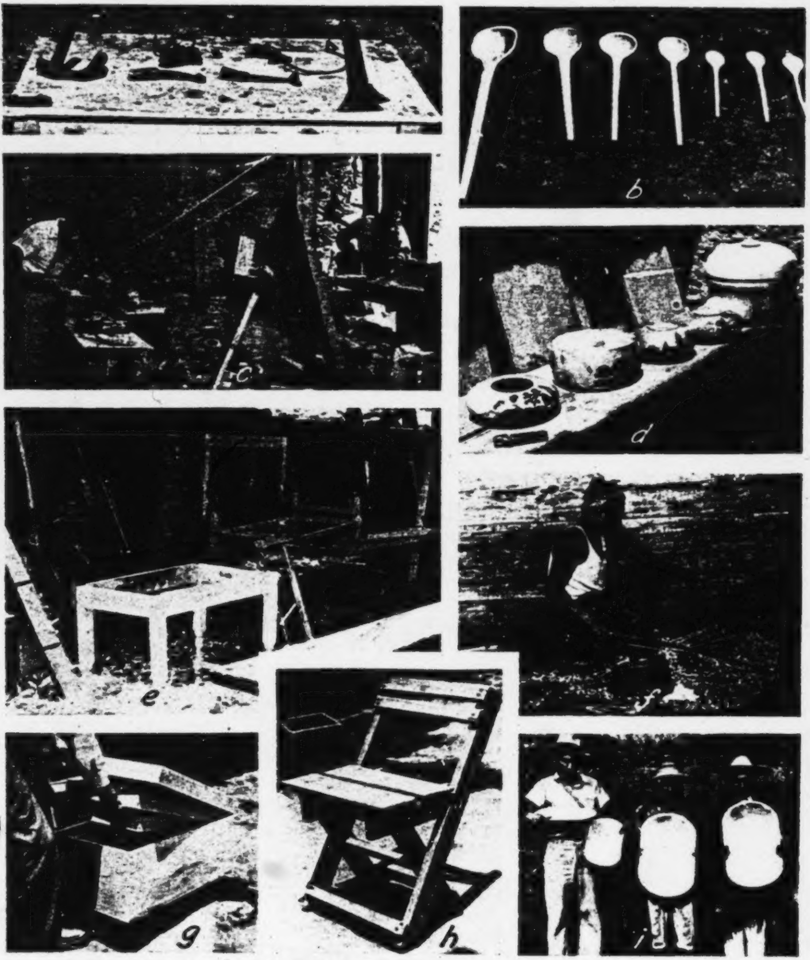

PLATE 12.—Woodwork. *a*, Gouging tools, Pamatácuaro. *b*, Wooden spoons and ladles, Pamatácuaro. *c*, Modern electrically powered lathe shop, Paracho. *d*, Turned objects made at Paracho. *e*, Cabinetmaker's shop in house lot, Corupo. *f*, Making *molinillos* with the bow lathe, Paracho. *g*, Nest of wooden boxes, Cuanajo. *h*, Small (2 feet high) folding chair commonly made in Cuanajo. *i*, Bateas made at Sirio.

[End-plate 13]

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PLATE 14.—Markets and transport. a, The Sunday firewood and fish market, Erongarícuaro. The wood vendor at left has already bartered a pile of [illegible] for a few fish in the basket. b, Pottery section of the Sunday market at Uruapan. c, The bread section of the Erongarícuaro market on the plaza. d, A train of burros bringing pine poles [illegible] from the sierra [illegible] to Arío de Rosales. e, Boats from Janitzio landing on the mud flats of Erongarícuaro for the Sunday market. f, Hauling disassembled chairs and tables from Corupo to the Uruapan market.

[End-plate 14]